IRON TRADE REVIEW
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Unfilled Orders Convey Strength

Deliveries On Finished Steel Lengthen and Prices Show Greater Firmness—Some Plants Now Operating to the Fullest Extent—New Requirements Come Out Freely—Steelmaking Pig Iron Shows Increased Demand

LENGTHENING deliveries of mill material furnish a reliable measure of the firm position in which the steel market has been establishing itself. With the mills possessed of expanding order books, buyers no longer are able to command tonnage at will and are finding it more necessary to anticipate their requirements. The 784,707-ton increase in the unfilled orders of the Steel corporation in December in the face of a 12 to 15 per cent increase in production in that period, marks the accelerated way in which buyers have been entering their requirements for delivery during the next two to three months. General market conditions, while tighter, however, show good equilibrium and both buyers and sellers are acting with calmness. Steel prices are steadier than in weeks.

Some of the Chicago mills now are unable to promise shipment on new steel bar tonnage before April. Western sheet capacity practically is sold up for three months. Plates which have been lagging show the effects of recent heavy railroad buying. At Chicago producers took 70,000 tons additional from this source in the week. Some plate mills at Pittsburgh virtually are out of the market.

Actually maximum operations are being reported from several quarters. In the Chicago district 30 out of 34 blast furnaces are going and steelworks activities there are virtually at the peak of working capacity, 95 per cent or better. Chicago production of steel bars is close to 100 per cent of its rated figure. In the Mahoning valley open-hearth plants of independent companies are engaged to the practical limit. The Carnegie Steel Co. has 48 of 59 blast furnaces and 90 per cent of ingot capacity in commission.

Ingot Output Is High

Despite the holiday slowdown, steel ingot production wound up the year with a rate in December which was 85 per cent of the high record mark for all time last March. December was the third largest month of the year and showed a 90 per cent gain over the low point in July. Compared with November, it registered a gain of 9.9 per cent. On an annual basis, it was running at the rate of 42,480,000 tons as against a rate of 38,650,000 tons. For the calendar year of 1924 complete, the ingot total was 36,645,444 tons compared with 43,485,665 tons in 1923, a loss of 15.7 per cent.

New Tonnage Liberal

Another week well above the average is shown by building steel awards with a total of 50,313 tons. Leading contracts include a 10,000-ton building at Chicago and one of 7000 tons at Detroit. Many jobs continue to be added to an already long pending list. Municipal work up at New York calls for 18,000 tons including a subway section and several schools.

New inquiries for more than 8000 cars have appeared including principally 5000 for the New York Central and 1000 for the Union Pacific which may be increased shortly. No important car orders have been placed this week. Rail business continues active, with 45,000 to 50,000 tons placed by New England roads.

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For the second time in about three weeks, both British and domestic makers of ferromanganese have advanced prices, this time to $115 seaboard.

Slightly lower wage rates will rule in the sheet and tin plate industry in January and February as the result of the bi-monthly examination of sales sheets. This showed an average price of 3.40c against 3.45c two months previously.

Iron Prices Higher

Steelmaking grades have come into greater prominence in the pig iron market this week. Basic and bessemer in the valleys have been advanced 50 cents per ton. Basic has gone to $22 valley with a sale of 10,000 tons to one buyer on this basis and another of 25,000 tons reported to have been closed by the Ford furnaces on a trade deal. Foundry and malleable are more stationary in price.

Early action on lake iron ore prices for 1925 is indicated. There is talk that an advance of 50 cents per ton may be made.

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Norma-Hoffman Bearings Corp., Anable Ave., Long Island City, N. Y.

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"Another Word" Is Opportunities

A FEATURE of distinct advantage to readers of Iron Trade Review is the comprehensive scope of its reports of structural steel awards. Iron Trade Review does not restrict its field to the East and Middle West, but each week sets forth the details from the Atlantic to the Pacific, and from Canada to the Gulf of Mexico. It is enabled to give a

Why Launch Big Boats and Drain the Great Lakes? Page 230.

more extensive report of awards because of its broader news-gathering facilities. Structural awards have been unusually heavy. The peak for tonnage was reported in the Nov. 27 issue, amounting to 94,000 tons in one week. Awards so far this year are averaging about 50,000 tons a week compared with 25,000 tons in 1924. Steel lettings show definite action has been taken, and that there will follow a demand for other materials and accessories, including a multiplicity of iron and steel products. Reporting awards, therefore, is like dotting the map with opportunities.

Cross Sections of Industry

"It is estimated that every year 24,000,000 feet of lumber go into patterns and flasks in general fonndries. Of this 80 per cent is white pine, 18 per cent sugar pine, and 2 per cent mahogany.—*From IRON TRADE REVIEW'S Survey, "Lumber".*

Pig Iron Moderately Active—Basic Up 50 Cents to $22, Valley—Pressure for Shipments Indicates Additional Buying Soon

PITTSBURGH, Jan. 13.—Demand for steelmaking iron is receiving considerable impetus. Basic and bessemer prices are up 50 cents ton. A valley merchant producer sold 5000 tons of basic at $22, valley, and 3000 tons of bessemer at $23, valley. The Mesta Machine Co. previously paid $22.50 on 500 tons of bessemer on protected quotations. The United Alloy Steel Corp. purchased 10,000 tons of basic, dividing the tonnage with producers outside of the Mahoning valley at $22, valley base. It is understood the Central Steel Co., Massillon, O., also bought several thousand tons of basic. One steelmaker in this district disposed of a fairly large quantity of basic, quoting $22. The foundry iron market is slow. Lots of 50 or 100 tons are moving at $22.50 and $23, valley, for No. 2. A middle interest has a single quotation of $22.25, valley merchant stack. Considerable iron in brokers' and bankers' hands still is hanging over the market. Several makers want a minimum of $23. Some are quoting $24, base, second quarter. A Mahoning valley steel company is naming $23 for that period. Inquiries are scarce, most jobbing foundries taking inventories. Low phosphorus demand and prices are unchanged. Customers are taking all iron on contracts, some ahead of time; hence prospects are bright for additional buying before the time for regular quarter purchases.

Inquiry Shows Improvement

Boston, Jan. 13.—Pig iron prices are firm in New England despite the recent lull in buying. Inquiry shows marked improvement. Actual sales during the past week, with the exception of 3000 tons to a Massachusetts manufacturer, have been limited to small lots. The same Massachusetts buyer is in the market for 2400 tons additional. Other inquiry includes 300 tons of No. 2X for a textile machine manufacturer for second quarter delivery, 400 tons for the New London Ship & Engine Co., New London, Conn., and another 400 tons for a Connecticut consumer. Prices for No. 2X range from $24 to $26, eastern Pennsylvania, or $27.65 to $29.65 delivered. Buffalo prices are more uniform, at $23 to $23.50 for the No. 2X grade, bringing the New England delivered range from $27.92 to $28.42.

Sales Mainly for Spot Shipment

New York, Jan. 13.—Sales of pig iron in this territory during the past week did not exceed 6000 tons mostly for spot shipment. On eastern Pennsylvania foundry the market now appears firm at $24, base furnace, for this territory. It is stated some irregularities have taken place on eastern Pennsylvania foundry but that these were in connection with business in New England. On eastern Pennsylvania 2.25 to 2.75 silicon the differential ranges from 75 cents to $1, while an additional $1 to $1.25 is asked for the 2.75 to 3.25 silicon grade. Recently some eastern Pennsylvania foundry was sold for the second quarter at $25, base furnace, but no quotations on this position have been made during the past few days. Eastern Pennsylvania furnaces generally are not anxious to sell for the second quarter. Buffalo makers are willing to take second quarter business at the first quarter price, which is $23, base furnace, plus 50 cents for 2.25 to 2.75 silicon, plus an additional $1.00 for 2.75 to 3.25 silicon. The Central Foundry Co. is inquiring for 2000 to 3000 tons of foundry iron for second quarter.

Occasional tonnages of foreign foundry iron are being offered in the East but the total tonnage is not large. Most of these offerings involve continental iron. Very little Indian iron is being sold at present.

Witherbee, Sherman & Co. blew in their large furnace at Port Henry last week on foundry iron. One of the furnaces of the Replogle Steel Co. is to go in about the middle of February. Several other furnaces are being prepared for operation.

Covering for Second Quarter

Buffalo, Jan. 13.—Pig iron inquiry has reached a total of 8000 to 10,000 tons, the bulk of which is for second quarter. The largest single inquiry now before Buffalo makers is one of 3000 tons of basic, for second quarter. Other inquiries are small. Sales include one lot of 4000 tons of foundry iron. The total amounts to about 15,000 tons for the week. Customers who have established connections with Buffalo makers are covering their second quarter needs. It is reported here all bookings have been at the base price of $23 for No. 2 foundry iron, (1.75 to 2.25 silicon). Prices on the higher silicon grades for first and second quarter are: No. 2X (2.25 to 2.75 silicon) and No. 1X (2.75 to 3.25 silicon) $24.50. Higher silicon grades for first quarter delivery are becoming scarce. The Bethlehem Steel Co. has placed a seventh stack in blast, bringing district production to 16 furnaces, with six idle. It is reported the Wickwire furnaces may be in operation before the end of the second quarter.

Basic Tonnages Closed

Cleveland, Jan. 13.—Moderate buying of pig iron is underway following the holiday lull. Second quarter business is developing slowly, while prices are firm and show a tendency to move up. Shipments are good; and a fair amount of spot buying is noted. Sales of foundry and malleable iron interests with headquarters here total about 20,000 tons for the past week. A preponderance of the business transacted by one of the leading sellers was for the second quarter. Another interest that is maintaining a uniform price of $23, furnace, for its various producing centers reports sales of 8000 tons of foundry and malleable iron for the week. Cleveland furnace interests are practically sold up, but quote nominally $24, furnace, for delivery in the 50-cent switching area. These interests figure the valley market as $22.50 to $23, furnace, which would bring the price of valley iron delivered here to $24.26 to $24.76. The lake furnace price is $23 for this quarter, and $23.50 for the second. The sale of 500 tons of foundry iron at $24, base, furnace, for second quarter is reported by one of the makers with headquarters here. Inquiries pending call for one lot of 3500 tons, another of 2000 tons, for the second quarter, and a dozen or more ranging down to 200 and 300 tons for spot delivery. An Indiana melter is inquiring for 1000 tons of foundry iron for the first quarter with option of extending it to the second quarter. Basic inquiries current last week have been closed. The United Alloy Steel Corp., Canton, covered for 10,000 tons. This is understood to have gone to a merchant interest having a freight rate of approximately $1 to Canton. The Central Steel Co., Massillon is said to have closed for 25,000 tons of basic iron with the Ford Motor Co., on a private arrangement.

Pickands, Mather & Co. have blown in their B stack at Toledo, both of their furnaces there now being in operation.

Buying in Small Lots

Cincinnati, Jan. 13.—A few pig iron users who failed to participate in the recent buying movement are beginning to satisfy their wants and a fair aggregate tonnage has been placed. Most buy-

ing is in small lots, but several sales of round tonnages are reported. The Armstrong Mfg. Co., Springfield, O., bought 300 of northern iron for first quarter, while a sale of 100 tons of malleable iron to the Springfield Malleable Co., Springfield, O., also is noted. The Globe Stove & Range Co., Kokoma, Ind., is inquiring for 1000 tons of northern iron for first quarter.

The American Rolling Mill Co. has decided to enter the merchant pig iron business and will produce malleable iron at its Columbus, O., plant. The market on northern iron for first quarter ranges from $22 to $23. Ironton base, while two furnace interests will entertain second quarter business at $23 to $23.50, generally are $1, although in some instances $1.50 extra is paid for No. 1X. English low phosphorus iron has sold at $26, duty paid, but $26.50 now is asked. This is equivalent to $26.76 to $27.26, delivered, to the Philadelphia district, or substantially $2 to $2.50 under the domestic price of copper-free, low phosphorus iron delivered. Basic is featureless. Virginia foundry iron continues $24 to $25, base furnace, plus 50 cents silicon differentials. Sales are small.

Pressure for Deliveries

Chicago, Jan. 13.—Pressure for deliveries rather than new business features the pig iron market. Most melters apparently are down to two weeks supply, and while no shutdowns are reported some have been averted by narrow margins. Jobbing foundries continue to lag, but in others the melt is increasing. Inquiries are better than last week, but still are under the December weekly average. Most inquiries range from 300 to 500 tons. A Chicago foundry is seeking 1000 tons of No. 2 foundry iron for first half. The market is strong at $24 furnace. Some small sales are noted at $24.50. All merchants stacks in Chicago are in blast. It is expected one Mayville and Thomas stacks will soon be active and demand apparently will square with production from these seven stacks. The active list is the largest since the middle of 1920. Inquiry for 500 tons of low phosphorous iron for delivery in Chicago is pending. Several sales, charcoal iron are noted. The price is unchanged at $26, furnace. Southern iron is $22.21, Birmingham, but selling in this district is light.

Orders Are Increased

St. Louis, Jan. 13.—Decided strength and more than the usual buying activty for this time of year are the outstanding features in pig iron. Since the first of the year a number of melters who had not previously covered their first quarter requirements have come into the market.

Inquiries for about 6000 tons of foundry iron are pending and there are tentative inquiries for basic totaling close to 10,000 tons. Northern iron here is quoted firmly at $24 to $24.50, while

Prices Present and Past

Representative market figures yesterday, and for last month, three months ago and one year ago

	Jan. 14, 1925	Dec., 1924	Oct., 1924	Jan., 1924
PIG IRON				
Bessemer, valley, del., Pitts ..	$24.76	23.51	21.76	24.66
Basic, valley	22.00	20.75	19.00	21.40
Basic, eastern del., eastern Pa.	24.25	23.25	20.00	22.50
*No. 2 foundry, del. Pitts.	24.01	22.61	21.26	24.16
No. 2 foundry, Chicago	24.00	22.40	20.50	23.70
*Southern No. 2, Birmingham..	20.00	19.80	17.50	21.60
*Southern Ohio, No. 2, Ironton	22.00	21.80	20.00	22.90
**No. 2X, Virginia furnace	24.50	24.50	24.50	25.00
**No. 2X, eastern, del. Phila..	25.76	24.88	21.36	24.26
Malleable, valley	22.50	21.10	19.50	22.00
Malleable, Chicago	24.00	22.40	20.50	23.70
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del Pittsburgh	23.26	22.01	20.76	23.56
Ferromanganese, del., Pitts....	119.79	109.79	104.79	113.79
SEMIFINISHED MATERIAL				
Sheet bars, bessemer, Pittsburgh	39.00	37.75	37.20	42.50
Sheet bars, open-hearth, Pitts....	39.00	37.75	37.20	42.50
Billets, bessemer, Pittsburgh....	38.00	35.60	36.60	40.00
Billets, open-hearth, Pittsburgh..	38.00	35.60	36.60	40.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.10	2.10	2.00	2.40
Steel bars, Chicago	2.10	2.10	2.00	2.50
Steel bars, Philadelphia	2.32	2.32	2.32	2.72
Iron bars, Philadelphia	2.28	2.42	2.32	2.57
Iron bars, Chicago mill	2.00	2.00	2.10	2.40

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

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FINISHED MATERIAL (Continued)				
Beams, Pittsburgh	2.10	2.05	2.00	2.50
Beams, Philadelphia	2.32	2.32	2.12	2.72
Beams, Chicago	2.20	2.20	2.00	2.60
Tank plates, Pittsburgh	2.00	1.90	1.80	2.50
Tank plates, Philadelphia	2.32	2.22	1.92	2.72
Tank plates, Chicago	2.20	2.20	2.00	2.60
Sheets, blk., No. 28, Pittsburgh	3.50	3.50	3.40	3.75
Sheets, blue anl., No. 10, Pitts.	2.70	2.65	2.60	2.95
Sheets, galv., No. 28, Pittsburgh	4.75	4.65	4.60	4.95
Sheets, black, No. 28, Chicago..	3.75	3.75	3.65	4.10
Sheets, blue anl. No. 10, Chicago	2.85	2.85	2.85	3.35
Sheets, galv. No. 28, Chicago	4.90	4.90	4.75	5.20
Wire nails, Pittsburgh	2.85	2.80	2.75	3.00
Wire nails, Chicago	3.00	3.00	2.90	3.35
COKE				
Connellsville furnace, ovens	4.00	3.70	3.00	3.80
Connellsville foundry, ovens	4.75	4.60	4.00	4.35
OLD MATERIAL				
Heavy melting steel, Pittsburgh	22.50	21.00	18.40	21.10
Heavy melting steel, eastern Pa.	21.00	20.50	17.20	18.15
Heavy melting steel, Chicago ...	20.50	18.65	16.25	17.40
No. 1 wrought, eastern Pa.	21.50	20.10	18.75	20.10
No. 1 wrought, Chicago	19.75	18.75	15.95	17.50
Rails for rolling, Chicago	21.50	19.90	17.20	18.90

Composite Market Average

Representing the Combined Average Prices Per Ton of Fourteen Leading Iron and Steel Products Yesterday, One Week, One Month, Three Months, One Year and Ten Years Ago.

Jan. 14, 1925	Jan. 7, 1925	Dec., 1924	October, 1924	Jan., 1924	Jan., 1915
$41.05	$40.92	$40.21	$38.65	$43.26	$21.90

Products Included Are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

furnace. The furnace quoting $21.75 for February and March shipment will accept tonnages for prompt delivery at $21.50. Southern iron continues quotable at $20 to $20.50, Birmingham base, with few sales reported at either figure.

Railroad Buys 6000 Tons

Philadelphia, Jan. 13.—The Pennsylvania railroad has bought its second quarter foundry iron. The total is believed to be 6000 tons. Three furnaces participated. The Pennsylvania Seaboard railroad bought 1000 tons of English low phosphorus iron. These are the largest sales of the week. Several other scattered sales range from 1000 tons downward. The total is only fair. Eastern Pennsylvania foundry iron generally is $24, base furnace, but in some instances lower prices have been done. Silicon differentials

No. 2 southern ranges from $21 to $22, with a sale of 150 tons reported at the higher figure. The leading local producer has advanced its price to $25 to $25.50, f.o.b. Granite City. Two important southern producers announce they are entirely sold up for the first quarter.

Small Lots Sold

Birmingham, Ala., Jan. 12.—While the southern pig iron market is strong sales recently have been in small lots. Sales have been closed at $20.50 for No. 2 foundry iron, and a further advance is looked for. A few inquiries have been received for second quarter iron, but selling has not started. The Tennessee Coal, Iron & Railroad Co. will hasten the relining of its No. 1 blast furnace at Ensley. The furnace has a capacity of 600 tons daily.

Iron and Steel Prices

SCRAP PRICES, PAGE 244; WAREHOUSE, ORE, PAGE 240; NUTS, BOLTS AND RIVETS AND PIPE PRICES, PAGE 246

Pig Iron

Prices per gross ton

Bessemer, valley	$23.00
Bessemer, Pittsburgh	24.76
Basic, valley	22.00 to 22.50
Basic, Pittsburgh	23.26 to 24.26
Basic, Buffalo	22.50 to 23.00
Basic del., eastern Pa.	24.00 to 24.50
Malleable, valley	22.50 to 23.00
Malleable, Pittsburgh	24.26 to 24.76
Malleable, Cleveland, del.	24.00 to 24.50
Malleable, Chicago	24.00 to 24.50
Malleable, Buffalo	23.00
Malleable, del., eastern Pa.	25.50 to 27.01

FOUNDRY IRON SILICONS

No. 2 Northern	1.75 to 2.25
No. 2 Southern foundry	1.75 to 2.25
No. 2X Eas'n and Virginia	2.25 to 2.75
No. 1X Eastern	2.75 to 3.25
No. 1 Chicago	2.25 to 2.75
No. 2 foundry Eastern	1.75 to 2.25

No. 1X, eastern del., Phila.	26.76 to 27.26
No. 1X, Buffalo	24.50
No. 1 foundry, Chicago	25.00
No. 2 foundry, valley	22.25 to 23.00
No. 2 foundry, Pittsburgh	24.01 to 24.76
No. 2 foundry, Buffalo	23.00
No. 2 foundry, Chicago	24.00 to 24.50
No. 2 foundry, Granite City	25.00 to 25.50
No. 2 foundry, Ironton fur.	22.00 to 23.00
No. 2 foundry, Cleveland, del.	24.00 to 24.50
No. 2 foundry, del., Phila.	24.76 to 25.26
No. 2 foundry, N. J., tidewater	25.39 to 25.64
No. 2X, eastern del., Phila.	25.76 to 26.26
No. 2X, eastern del., Phila	26.39 to 26.64
No. 2X, eastern del., Boston	27.65
No. 2X, foundry, Buffalo fur.	23.50
No. 2X, Buffalo, del., Boston.	27.91 to 28.41
No. 2 southern, Birmingham	20.00 to 20.50
No. 2 southern, Cincinnati	24.05 to 24.55
No. 2 southern, Philadelphia	27.80 to 28.30
No. 2 southern, Chicago	26.01 to 26.51
No. 2 southern, Cleveland	26.01 to 26.51
No. 2 southern Boston (rail and water)	26.91 to 27.41
No. 2 southern, St. Louis	25.17 to 25.67
No. 2X, Virginia furnace	24.50 to 25.50
No. 2X, Virginia, Phila.	29.67 to 30.17
No. 2X, Virginia, Jersey City	30.04 to 30.54
No. 2X, Virginia, Boston	30.42 to 30.92
Gray forge, eastern Pa	24.00 to 25.00
Gray forge, val. del., Pitts.	23.26 to 24.26
Low phos., standard, valley	29.00 to 29.50
Low phos., standard, Phila.	29.79
Low phos., Lebanon, furnace	26.00
Charcoal, Birmingham	30.00
Charcoal, Superior, Chicago	29.04

Silvery iron, Jackson county, Ohio, furnace, 7 to 8 per cent, $29.00; 8 to 9 per cent, $30.50; 9 to 10 per cent; $32.50; 10 to 11 per cent, $34.50; 11 to 12 per cent, $37.00; 12 per cent, $39.50.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 to 11 per cent, $39.50; 11 to 12 per cent, $42.00; 12 to 13 per cent, $44.50.

Ferroalloys

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	$115.00
Ferromanganese delivered Pittsburgh	119.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	31.00 to 33.00
Ferrosilicon, 50 per cent contract freight allowed	85.00
Ferrotungsten standard, cents per pound contained	85.00 to 87.00
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, del.	11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.60 to 3.75
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00

†Duty paid.

Coke

Beehive, Ovens
Prices per net ton

Connellsville, furnace	4.00 to 5.50
Connellsville foundry	4.75 to 6.00
New river foundry	8.50 to 9.00
Wise county furnace	4.25 to 4.50
Wise county foundry	5.00 to 5.50
Alabama furnace	4.00 to 4.50
Alabama foundry	4.50 to 5.00

By-Product

Foundry, Newark, N. J., del.	$10.41
Foundry, Chicago, ovens	10.75
Foundry, New England, del.	11.50
Foundry, St. Louis	11.00
Foundry, Granite City, Ill.	9.00
Foundry, Alabama	4.56 to 5.00

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS
4 x 4-inch and larger

Pittsburgh and Youngstown	$38.00 to 38.50
Philadelphia	42.80 to 43.80
Chicago	35.00 to 38.00
Forging, Pittsburgh	42.00 to 43.00
Forging, Philadelphia	47.80 to 48.80

SHEET BARS

Pittsburgh and Youngstown	$37.00 to 38.00

SLABS

Pittsburgh	38.00
Youngstown	38.00 to 38.50

WIRE RODS
¼-inch and finer

Pittsburgh	$48.00
Cleveland	48.00
Chicago	50.00 to 51.00

Standard extras, $2.50 per ton over ¼-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	2.00c to 2.10c
Universal skelp, Pittsburgh	2.00c to 2.10c
Sheared skelp, Pittsburgh	2.00c to 2.10c

Structural Shapes

Prices per pound

Pittsburgh	2.10c
Philadelphia	2.32c to 2.42c
New York	2.34c to 2.44c
Chicago	2.20c
Cleveland	2.29c
Birmingham	2.25c to 2.35c

Steel Plates

Pittsburgh	2.00c to 2.10c
Philadelphia	2.32c to 2.42c
New York	2.34c to 2.44c
Chicago	2.20c
Cleveland	2.19c
Birmingham	2.15c to 2.25c

Iron and Steel Bars

Pittsburgh, soft steel	2.10c
Pittsburgh, cold finishing	2.25c
Pittsburgh, forging quality	2.35c
Philadelphia, soft steel	2.32c to 2.42c
New York, soft steel	2.34c to 2.44c
Chicago, soft steel	2.10c
Cleveland, soft steel	2.29c
Birmingham, soft steel	2.25c to 2.30c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	2.90c to 4.50c
Pittsburgh, reinforcing billet	2.10c
Chicago, rail steel	2.03c
Mill, rail steel	1.90c to 2.00c
Philadelphia, common iron	2.47c
New York, common iron	2.49c
Chicago, common iron	2.00c to 2.10c

Hoops, Bands, Strip

Prices per pound f.o.b. mills

Hoops, Pittsburgh, under 3 in.	2.40c to 2.50c
Hoops, Pittsburgh, 20 gage, under 1 in	2.75c to 3.75c
Bands, Pittsburgh	2.40c to 2.50c
Hot rolled strip steel, Pittsburgh stamping quality	2.25c to 2.40c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	4.15c

Chicago and Worcester, Mass. $3 per ton higher.

Cold Finished Steel

Prices per pound

Cold finished steel bars, drawn or rolled Pittsburgh, Chicago, carloads	2.80c
Less carloads	3.05c
Steel shafting, turned and polished Pittsburgh, Chicago	2.80c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Rails, Track Material

Standard bessemer rails, mill	$43 00
Standard open-hearth rails, mill	43.00
Relaying rails, St. Louis	27.00 to 32.50
Relaying rails, Pittsburgh	27.00 to 30.00
Light rails, 25 to 45, mill	1.80c
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.90c
Spikes, small railroad, 7/16-inch and smaller, Pittsburgh	3.20c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.90c
Track bolts, Pitts. standard	3.90c to 4.00c
Track bolts, Chicago	3.90c
Tie plates, Pittsburgh	2.35c to 2.50c
Tie plates, Chicago	2.35c

Wire Products

To Jobbers in Carloads
Prices per pound

F.o.b. Cleveland and Pittsburgh base	
Wire nails	2.85c
Galv'd nails, 1-inch and over	5.10c
Plain wire	2.60c
Annealed wire	2.75c
Galvanized wire No. 9 gage	3.20c
Barbed wire, painted	3.30c
Barbed wire galvanized	3.55c
Polished staples	3.30c
Galvanized staples	3.55c
Coated nails, count keg	2.25c
Woven wire fencing (retailers) 12½ gage, 26-in. high 7 bars and 12-in. stays per 100 rods, f.o.b. Pittsburgh	$20.56

Joliet, DeKalb and Waukegan, Ill., $2 per ton over Cleveland-Pittsburgh base on products made there. Worcester, Mass., and Fairfield, Ala., $3 higher. Duluth $2 higher. Chicago delivered price $3 higher, Anderson, Ind., $1 higher.

Sheets

Prices per pound

SHEET MILL BLACK

No. 28, Pittsburgh base	3.50c to 3.60c
No. 28, Philadelphia, delivered	3.82c to 3.92c
No. 28, Gary, Indiana Harbor	3.70c
No. 28, Chicago, delivered	3.75c

TIN MILL, BLACK

No. 28, Pittsburgh base	3.60c
No. 28, Gary base	3.70c

GALVANIZED

No. 28, Pittsburgh, base	4.75c
No. 28, Philadelphia, delivered	4.92c to 5.07c
No. 28, Gary Indiana Harbor	4.85c
No. 28, Chicago, delivered	4.90c

BLUE ANNEALED

No. 10, Pittsburgh base	2.70c
No. 10, Philadelphia, delivered	3.02c to 3.12c
No. 10, Gary, Indiana Harbor	2.80c
No. 10, Chicago, delivered	2.85c

AUTOMOBILE SHEETS

No. 22, Pittsburgh, base	4.75c

Tin Plate

Prices per 100-pound box, Pittsburgh

Tin plate, coke base	$5.50

Gary, Ind. base 10 cents higher

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch, butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—f.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3½ to 3¾-inch	35

Chain, Piling, Cut Nails

Prices per pound

Chain, 1-in. proof coil, Pitts.	6.25c
Sheet piling base, Pittsburgh	2.05c to 2.15c
Cut nails, f.o.b. mills	2.90c

Hot Rolled Alloy Steels

Price per pound, Pittsburgh base

S. A. E. Series—	
2300 (3½ per cent nickel)	4.75c
3100 (nickel chromium)	3.65c to 3.75c
6100 (chrome vanadium)	4.50c to 4.75c
6100 (Chrome vanadium spring)	4.00c to 4.25c
9250 (Silico manganese spring)	3.15c to 3.50c

Billets—4 x 4 to 10 x 10, gross ton at net ton bar price; under 4 x 4 to 2½ x 2½-inch $5 higher.

Chicago base $2 per ton above Pittsburgh.

Buoyancy Shown in Scrap

Prices Advancing in all Centers—Foundry Grades and Steel Scrap Reflect Activity of General Manufacturers—Supply Is Light

SCRAP PRICES, PAGE 244

Chicago, Jan. 13.—On the strength of sales to melters, heavy melting steel scrap has moved up to a range of $20.50 to $21. Consumption of steel scrap is increasing, yard supplies are comparatively light and railroad offerings are smaller. One dealer estimates that consumers have taken in fully 1,000,000 tons of steel scrap in the past year.

Railroad malleable is strong and one dealer has paid a railroad the equivalent of $22 gross, tracks. Iron rails at $20.50 to $21 are within $1 of rerolling rails. No. 2 wrought has been in fair demand.

The strength of the market here appears undiminished and consumers are paying 75 cents to $1 a ton over a week ago. Ordinarily, after some weeks of steady advance a reaction would be looked for but at this time all indications are on the side of strength. Railroad offerings include 8500 tons by the St. Paul and 900 by the Northern Pacific.

Cast Grades Are Advanced

Boston, Jan. 13.—While the rush of orders for iron and steel scrap reported a week ago has gradually subsided, the market is on a firm basis tending upward. Heavy melting steel is moving freely into Pennsylvania against old orders. Local dealers are offering $16 to $16.50 shipping point for this grade. Chemical borings are more plentiful and the price is softer than a week ago, but cast grades have advanced. No. 1 machinery has sold at $20 delivered and several sales of textile scrap are reported at $22.50 delivered. The Boston & Albany railroad received unexpectedly high prices on a recent sale. Mixed borings and turnings are in fair demand at $10.50 shipping point.

Quotations Are Firm in East

New York, Jan. 13.—Quotations on iron and steel scrap are firm. Large consumers are booked ahead fully 30 days or so. Cast scrap is moving in good volume, with supplies offered more freely. This situation reflects the improvement in pig iron prices. Until a month ago, supplies of cast scrap were steadily accumulating. Low prices on pig iron depressed the market and sellers were inclined to hold their material. Stove plate, however, has not responded to any extent, being relatively low as compared with the heavier grades of cast. It appears attributable to the light demand prevailing in this district. Foundries using this material have as a whole been operating at a low rate.

Most Trading by Dealers

Philadelphia, Jan. 13.—Small business has been done the past week in iron and steel scrap, most activity being between dealers. Consumers have taken some specialties, including borings, cupola cast, knuckles, grate bars and rails for rolling. These grades are up 50 cents to $1 as a result.

Steel Works Take Tonnage

Buffalo, Jan. 13.—The Bethlehem Steel Corp. has purchased a good sized tonnage of heavy melting steel for its Lackawanna plant, split among several dealers. The Donner Steel Co. has not been buying actively. While Youngstown and Pittsburgh have been bidding for steel held here offers are not high enough to pay carrying charges. Other materials are rather dull. An Ohio melter is buying turnings at a price which nets $14.50 to $14.75, Buffalo. Some inquiry for car wheels is reported. Holders of this material are asking $20. Heavy snows are delaying shipments from all yards in Central New York and Canada but there is enough material in the Buffalo yards to supply the present and apparent nearby demand.

Prices Rising at Pittsburgh

Pittsburgh, Jan. 13.—The iron and steel scrap market here has been much more active and is occupying a much stronger position. Many sales have been made of various grades and several consumers are indicating early purchases of large tonnages. One nearby steelmaker is today offering $22 for heavy melting steel in lots of 10,000 tons. Dealers are bidding $22 themselves and the last sales at Steubenville, O., are understood to have been on the basis of $22.50. The Pennsylvania railroad received $23, Pittsburgh, on heavy melting steel on its recent list and bids on other grades were similarly high. On the strength of recent transactions, several grades have been advanced 50 cents to $1.50 per ton, specialties having sold at $24 to $24.50. One sale of iron car wheels is noted at $22 and No. 1 cupola cast brought $21. A Brackenridge, Pa., district user paid $19.50 for heavy breakable cast and rerolling rails have gone at $24, but next sales will probably be at $24.50 or higher. Bundled sheets are back to $20 to $20.50, and compressed at $21 to $21.50 on the basis of fairly large movements.

St. Louis Prices Rise

St. Louis, Jan. 12.—Iron and steel scrap continues active and strong. Heavy melting steel is at the highest level since early in 1923. While activity is chiefly among dealers, there has also been substantial buying of consumers, particularly steel mills. One interest bought close to 10,000 tons, and another 5000 tons.

There is strong competition from Chicago and other centers for scrap for the South which heretofore went to St. Louis. This and heavy needs of local melters, form the chief basis for the opinion that St. Louis prices on a number of important items will go on a parity with Chicago. Heavy melting steel here at $18.50 is only $1 below the Chicago quotation now.

Railroad offerings are picking up. Lists include the Chicago & Eastern Illinois,

(*Concluded on Page* 200)

Semifinished Now Scarce

Shortage Noted at Pittsburgh, with Consumers Seeking To Cover Further Needs—More Sales of Sheet Bars Made at $40

SEMIFINISHED STEEL PRICES, PAGE 191

Youngstown, O., Jan. 13.—A sale of small billets approximating 50 tons was closed with a district producer at $40, Youngstown. Another producer of semifinished material disposed of approximately 150 tons of special analysis sheet bars on the basis of $40, Youngstown. Steel for semifinished products continues scarce and little effort is being made to turn tonnage. Large billets and slabs are priced at $38.50, Youngstown, although no sales yet have been made on this basis. Specifications against sheet bar contracts are coming out in attractive tonnages.

Consumers Are Covered

New York, Jan. 13.—Due to the fact that most semifinished consumers are protected by contracts, new business is small. There is very little activity because it is too soon after the beginning of the year for specifications to develop size. On small lots of forging billets $44 to $45, base Pittsburgh, has been done, although the market range on this product is regarded as around $42 to $45. On rerolling billets the market is $37 to $38, base Pittsburgh. On wire rods the market is firm at $48, base Pittsburgh.

Material Is Scarce

Pittsburgh, Jan. 13.—Semifinished steel inquiries are more numerous than are sales at present since virtually a shortage of semifinished steel has arrived. Steel mills have need of large tonnages themselves under increased operating schedules, as well as for their few select customers whom they are bound to protect. Those without finishing departments themselves have regular customers on sheet bars, billets and slabs to whom they have obligated themselves for their entire first quarter output. Inquirers at present are finding it difficult to place tonnages and the price situation accordingly is strong.

Sheet bars cannot now be had at less than $40, and one sale made a few days ago by a Cleveland producer to a Pittsburgh district user was on the basis of $40, mill. Billets are firm at a $38 minimum, as are slabs. From time to time an inquiry develops for 100 or 150 tons of billets for stirring rods. Large conversion mills among strip and other steel producers are out for additional tonnages, usually 500 to 1000 tons at a time, and smaller units are asking for 50 to 300 tons because they under estimated their requirements. Forging billet users are practically all protected and are receiving material on contracts. The present price is $43.

Wire rods are firm at $48 although shipments on lower priced contracts are heavy in comparison with the new buying rate. Inquiries are scarce on skelp, but many negotiations never reach the open market in the form of inquiries; users have their regular connections and

are under contract. The present skelp market is quoted at 2.00c to 2.10c, with the minimum showing some indication of disappearing.

Eastern Billet Sales Small

Philadelphia, Jan. 13.—Billet sales are small. Rerollers are nominally $37 to $38, Pittsburgh, and forging billets $42 to $45. Rods are $48.

Sales Made at $40

Cleveland, Jan. 13.—A few small tonnages of sheet bars and slabs have been sold by a local producer in the week at $40, Cleveland, some for spot delivery and others for delivery in this quarter. While $40 is the general asking figure on sheet bars by valley mills, a price of $39 evidently has not disappeared. Most consumers have closed for their requirements. A northern Ohio company that recently placed a round tonnage has been looking for 5000 tons more of sheet bars.

German Billet Bars Sold

Chicago, Jan. 13.—German billet bars of a good quality have been coming into southern points, especially in Texas, at such a low price as to render domestic competition difficult. It is reported that recent delivered prices on German billet bars at Dallas, Tex., figure $2 to $3 a ton lower than rail steel bars at 1.90c, St. Louis, plus the freight.

Machine Tool Dealers in New Organization

Cincinnati, Jan. 13.—Promotion of closer relationship and co-operation between manufacturers and dealers in the machine tool industry was the object of a meeting of dealers held here at the Business Men's club yesterday. Closer working relations among dealers and an exchange of ideas in interest of the industry are expected to result from the activities of the new association, which took for its name the National Association of Machine Tool Dealers, according to T. W. Carlisle, Strong, Carlisle & Hammond Co., Cleveland, who was elected secretary. At the meeting a constitution and by-laws were adopted and officers were elected for the provisional organization which will have its headquarters in Cleveland.

Officers were elected as follows: President, G. E. Merryweather, Motch & Merryweather Machinery Co., Cleveland; vice president, Marshall Prentice, New York; secretary, T. W. Carlisle, Cleveland; treasurer, G. E. Cherrington, Pittsburgh. Directors include the above officers and Charles E. Bush, Detroit; L. H. Swind, Philadelphia; J. R. VanDyke, New York; William R. Wright, St. Louis and William J. Radcliffe, Cincinnati. The new association will endeavor to co-operate with the National Machine Tool Builders' association whose headquarters are in Cincinnati. The organization meeting was attended by 25 representative machine tool dealers and distributors but all machine tool dealers and distributors in the United States ultimately are expected to become affiliated with the new organization.

An assignment for the benefit of creditors has been made by the Sparta Well Drilling Machine Co., Sparta, Wis. This is one of the first and among the largest manufacturers of derricks, drills, pumps and engines for contractors in the country.

Surplus Coke Is Offered

Spot Market Held Down to $4 to $4.25—Makers Quoting $4.50 to $5 on Extended Deliveries—Foundry Demand Light

COKE PRICES, PAGE 191

Pittsburgh, Jan. 13.—Surplus beehive coke still is being offered in the spot market, keeping prices low. Small lot buyers report ability to obtain standard 48-hour fuel at $3.50, but the lowest quotations developed here are $4 to $4.25. Higher prices prevail for extended deliveries, $4.50 to $5. Some makers are quoting $5.50 for second quarter. The Youngstown Sheet & Tube Co. close requirements for one stack until April 1 below $5. The Rogers, Brown Iron Co. was a recent buyer around that figure. The Shenango Furnace Co. is deferring purchases for the remainder of its second quarter needs, and the Sharpsville furnace still is negotiating, as are several other buyers for that period. Some furnaces have not decided whether to blow in or not. Spot foundry coke demand is slim, because of inventory. Practically no contracting activity is noted. While some producers are quoting $5.85 maximum no sales are reported above $5.50. The usual figures are $5 or $5.25. Some spot coke occasionally is sold at $4.75. Certain oven operators have not yet raised wages. They are selling so-called premium brands at $5.50.

Production of coke in the Connellsville region for the week ended Jan. 3 was 188,580 tons compared with 162,710 tons the preceding week, according to the *Connellsville Courier*.

Weak Spots Develop

New York, Jan. 13.—Due to the fact that production on the part of some operators is larger than their shipments at the moment, the market in beehive foundry coke for spot shipment has developed some weak spots. Spot coke now may be had at $4.75 to $6, Connellsville. The usual prices seems to be $5.25. Comparatively. little business is being placed at this time. On by-product foundry coke the market continues $10.41 delivered at Newark and other northern New Jersey consuming points. On medium sulphur beehive coke the market now is $3.90 to $4.25, Connellsville.

Contracting More Active

St. Louis, Jan. 13.—Contracting for first half supplies of metallurgical coke is reported in good volume. An active spot movement to melters in the district is noted. All of the business is cared for by the local by-product interests. Industrial users have filled their requirements, but there has been some increasing in contracts previosly let, and a fair volume of fill-in-orders. The largest commitments by industrial users heard of are 10,000 tons of furnace coke for a nearby smelter, and 5000 to 12,000 tons for a local smelter.

Foundry Demand Holding Up

Cincinnati, Jan. 13.—Increased demand for domestic coke is noted in this market. The Ashland By-Product Coke Co. is shipping considerable domestic coke into Michigan. Demand for foundry coke is holding up remarkably well. Producers of Wise county coke are getting more business and quotations are firmer. The market on the foundry grade ranges from $5 to $5.50 ovens, while the furnace fuel for shipment over the first quarter is obtainable at $4.25 with $4.50 done occasionally. New River coke also is displaying greater activity, although shipments are not as heavy as before the holiday season. Demand for Pocahontas furnace coke is increasing, while the foundry grade is difficult to move at $5 ovens, according to producers. Producers of by-product coke report a fair run of orders, although business with many is far from satisfactory.

Better Demand Noted

Birmingham, Ala., Jan. 12.—While a better demand for coke is noted in this district, quotations remain at $4.50 to $5 per ton. By-product oven operations are steady as beehive production diminishes. By-product coke output will be considerably greater by the end of the year through the completion of 25 ovens for the Alabama By-Product Corp., and 57 for the Republic Iron & Steel Co. Another battery of by-product ovens for this district is under negotiation.

Jobbers Take Wire

Specifications Coming Steadily—New Buying Is Light

WIRE PRICES, PAGE 191

Pittsburgh, Jan. 13.—Jobber specifications against 60-day contracts mostly in mixed carloads of various wire products with occasional straight carloads, are fairly numerous. These are all coming in practically without pressure. Manufacturers are specifying freely against contracts for the quarter. While new business is light, replacements are not looked for until February or March. Mills are not now inclined to carry unexpired contracts forward and tonnages not taken out are usually cancelled at the expiration dates. Plain wire is quoted at 2.60c and wire nails at 2.80c, f.o.b. Pittsburgh district mills. A few orders for fencing are coming through, many for less than carload quantities.

Demand Steadily Improves

Boston, Jan. 13.—Sales of wire and wire products with the exception of nails have shown improvement during the past week and demand is urgent, according to several sellers. The price in New England varies from point to point being regulated in most cases by the Worcester base price of 2.75c plus local freight. Nail demand dropped off sharply during the past week.

Jobbers Not Yet Buying

Chicago, Jan. 13.—While jobbers are expected to be heavy buyers of wire and nails in February and March for spring demand, they are still too much engrossed in inventory to take an interest in the market now. Most makers of wire and wire products are operating at 70 to 80 per cent but are stocking some of this output. Railroads have been fair buyers of nails in the past week. Western delivered prices on plain wire still figure back to 2.70c, base Joliet and Waukegan, and on wire nails to 2.95c.

April Delivery on Bars

Mills Well Filled Ahead and Current Business Is for Second Quarter —Automotive and Implement Buying Yet To Come

BAR PRICES, PAGE 191

Chicago, Jan. 13.—Considering the market interest in December, the volume of new buying of soft steel bars has been surprisingly heavy. Specifications also have exceeded expectations and one mill is understood to be promising no better delivery than early April on business now being booked. This excellent condition has been developed without the assistance of marked buying by either the automobile or the implement industry. Chicago district makers of soft steel bars are operating as close to 100 per cent as mechanical conditions permit. Fewer price concessions are claimed, and the market is 2.10c, Chicago.

Most bar iron makers claim 2.10c, Chicago, as their minimum but observe that competitors are going as low as 2.00c. It would appear that the market is a little firmer but that a range of 2.00c to 2.10c, Chicago is warranted. New business is fair.

Rail steel bars are unchanged at 2.00c, mill, or 2.03c, Chicago, with the Moline interest claiming 2.10c. New business continues slightly greater than shipments.

New Buying Less Active

Cleveland, Jan. 13.—Something of a lull in new buying of steel bars has prevailed the past week, buyers apparently resting on the liberal specifications recently filed. However, during the past few days order mail has improved and some consumers, having covered themselves for the first quarter, now are beginning to inquire for second quarter contracts. This applies especially to manufacturing buyers. Prices are firmly held on the basis of 2.10c, Pittsburgh or 2.29c, Cleveland and almost no talk of concessions now is current. Hoops and bands are quoted at 2.40c to 2.50c, Pittsburgh.

Large Business Being Done

Pittsburgh, Jan. 13.—A flourishing business is being booked by merchant steel bar makers. Specifications are coming through regularly and on some sizes delivery dates are becoming more and more deferred. These are against 2.00c contracts but the present market price is firm at 2.10c and while there is no tendency toward inflation, producers are considering the advisability of inaugurating another advance before second quarter contracts. Occasional new orders for 50 to 250 tons are being taken at 2.10c and many mills have obligated their entire first quarter output. Inquiries are developing for delivery after March 31 but these are being turned down.

Refined iron bars are quoted at a minimum of 2.90c and 3.00c is named on small quantities. Up to 4.50c is quoted on double refined iron. Demand has improved considerably.

Firmer In New England

Boston, Jan. 13.—Soft spots in the bar market have disappeared during the past week and the price is firm at 2.465c delivered, corresponding to 2.10c Pittsburgh. A well advertised offer of 200 tons failed to break this price. Sales of the week have dropped below the unusually high total of the previous week.

Few Cold Finished Orders

Pittsburgh, Jan. 13.—New business in cold-finished steel bars is developing slowly. Mills however, are well furnished with orders and continue to operate at 75 to 80 per cent of capacity with hope of increasing that rate before the month is out. Shipments accordingly are high since specifications keep up at a remarkably liberal rate. Bookings for this quarter were largely taken at 2.70c but new business has been at 2.80c there being little resistance to the increase. The automotive business is not going ahead as swiftly as anticipated but this shows signs of recovering now that the automobile show season is on.

Iron Bar Prices Lowered

Philadelphia, Jan. 13.—At least two important makers have abandoned Pittsburgh plus practice in selling iron bars. They now are quoting, f.o.b. mill prices, with the consumer paying the freight. The result is a lowering of delivered prices in Philadelphia. The market now is 2.28c to 2.32c, delivered in carloads.

Hoop Mills Filled Up

HOOP PRICES, PAGE 191

Pittsburgh, Jan. 13.—So heavy has been demand for narrow hoops and bands that some mills are fully sold for the first quarter and cannot take additional business. Others have room for a limited tonnage. This business is diversified but comes larely from cooperage manufacturers and stamped automotive parts makers. Prices are firm at 2.40c to 2.50c, except on the narrow sizes of thin gages where the base price runs as high as 3.75c, starting at 2.75c to 3.00c.

Expect New Bolt Buying To Resume Soon

NUT AND BOLT PRICES, PAGE 246

Pittsburgh, Jan. 13.—Admittedly less than was expected by this time, new business in nuts, bolts and rivets is coming in piecemeal. The aggregate tonnage for a week is only fair. But customers all bought heavily in December and now are engaged in working their stocks down to a point where replacements will be necessary so that the outlook is bright for new business in February, if not before. Nut, bolt and rivet plant operations are on the basis of 75 per cent on the average and shipments are high since no interruption has come to specifications. Prices are holding firmly on the basis of 50-10-10 off for large machine bolts, and 2.60c f.o.b. Pittsburgh mills on structural rivets.

Heavy Orders Are Received

Cleveland, Jan. 13.—Bolt and nut makers continue to report the receipt of a heavy volume of orders. Specifications against contracts have been large during the first 10 days of this month and producers state that practically all contracts for first quarter now are in. Prices are firm at 50, 10 and 10 per cent off to 50, 10 and 5 per cent off for large machine bolts. Talk of an advance of 5 per cent is heard.

Demand for rivets is stronger now than it has been in months. Makers are receiving a good amount of orders and prices are firm on the basis of 2.60c Pittsburgh and 2.75c Chicago. Small rivets are held at 70, 10 and 5 off Pittsburgh and 70 and 10 off Chicago.

Specifications Slightly Better

Chicago, Jan. 13.—Specifications for bolts and nuts in the second week of January were slightly heavier than those of the first week, but January is not expected to equal December. The trend in the automobile industry is upward but the pace is discouragingly slow to makers of bolts and nuts. Implement makers are gaining slowly and a faster gait is looked for shortly. Prices are said to be firm on the basis of 50, 10 and 10 off for large machine bolts.

Specify Tin Plate

Users Willing To Take All Mills Will Ship—Output Is Increased

TIN PLATE PRICES, PAGE 191

Pittsburgh, Jan. 13.—Specifications are coming through for tin plate almost without interruption and shipments are heavy. Tin mill operation is high and this week will be higher, the American Sheet & Tin Plate Co. having increased activity. Specifications from can makers to the leading interest have been heavy for allocation to its Gary and Ellwood, Ind., mills. It is operating between 70 and 75 per cent of capacity, the general average in the industry here being between 85 and 90 per cent. Tin plate consumers appear willing to take in all the material the mills can ship them. The price on the domestic tin plate is firm at $5.50 per base box of 100 pounds, f.o.b. Pittsburgh district mills.

Specifications Released

Youngstown, O., Jan. 13.—Producers of tin plate have attractive tonnages on their books in the form of contracts and while specifications during the past two weeks have been somewhat tardy conditions at the beginning of this week show improvement. Canmakers are releasing their specifications more freely with the result that rolling schedules have been determined for all turns this month.

Talk 50 Cent Ore Raise

ORE PRICES, PAGE 246

Cleveland, Jan. 13.—Early action is likely to be taken by Lake Superior iron ore producers on the price of ore for 1925, as consumers' stocks are low and furnaces are absorbing the available supply at a rapid rate. Some talk is heard that the price will be increased 50 cents a ton. Producers continue to make reservations on long term contracts, but no sales have been made in the open market for 1925, and so far no inquiries have appeared. Shipments

from Lake Erie ports during December totaled 732,418 tons, and the balance on dock Jan. 1 was 7,346,037 tons compared with 7,981,432 tons Jan. 1, 1924.

Another Advance

Made in English Ferromanganese to $115 Seaboard—Buying Light

FERROALLOY PRICES, PAGE 191

New York, Jan. 13.—For the second time in about three weeks English makers of ferromanganese have advanced their prices $5 per ton and now are quoting $115, duty paid tidewater equivalent to $119.79, delivered Pittsburgh. This advance was preceded by several sales aggregating about 1000 tons during the week at $110, duty paid tidewater.

The spiegeleisen market is featured by the sale of 500 tons of this metal for shipment to Germany. Domestic sales aggregate only a couple of hundred tons. The market on spiegeleisen continues at $31 to $33, furnace, for the 20 per cent grade.

Prices of the special ferroalloys are unchanged as published. The major contract business of the year is closed in ferrosilicon and ferrochrome, while considerable contract business also has been done in ferrotungsten on a conversion basis. New business in ferrovanadium is improving, principally for early delivery. Ordinary Chinese wolframite has sold again at $9 a shore ton unit. Due to the rise in sterling exchange India now is asking $21 a long ton, c.i.f. Atlantic port, for chrome ore.

All Makers Quote $115

Philadelphia, Jan. 13.—Domestic sellers of ferromanganese are following the lead of English producers in advancing prices $5 per ton to $115, duty paid tidewater. The market now is generally firm at the new price.

Interest at Low Point

Pittsburgh, Jan. 13.—Interest in ferroalloys in this district is at a low ebb. Most consumers either have material in stock or have it coming to them on contract. English ferromanganese, because of a further rise in sterling has been advanced to $115 seaboard, duty paid.

Spiegeleisen sellers report no inquiries and no sales. The market continues strong however, with quotations at $33 to $34, furnace, on the 19 to 21 per cent material, depending upon the quantity. The market on 50 per cent ferrosilicon is quoted at $85 although contracts were taken at $82.50 for delivery over the first half and some for over the entire year. Inquiries now are scarce. One carload of 12 per cent ferrosilicon sold here this week brought about $44 delivered. The Latrobe Electric Steel Co. wants a carload of ferrochrome but other alloys generally are quiet. Prices are strong at the quoted bases.

Some Sales at $115

Chicago, Jan. 13.—Some sales of English ferromanganese have been made in this district at the new and higher price of $115, seaboard. Domestic spiegeleisen continues at $33, furnace.

More Plate Needs Figured

Pipe Line at St. Louis To Take 15,000 Tons—8000 Freight Cars Pending at Chicago—Lake Vessel Up—Shipments from Pittsburgh Deferred

PLATE PRICES, PAGE 191

Pittsburgh, Jan. 13.—That deliveries on plates are from eight to 10 weeks deferred is indicative of a stronger position of plate mills. The market here is quoted at a minimum of 2.00c to 2.10c. A mill at Coatesville, Pa. is naming 2.25c f.o.b. that point. Operations are higher, 80 to 85 per cent of capacity, working off backlogs, although not much in the way of new business is developing. Apparently some of the sales made late last year involved blanket tonnages at the low prices then prevailing and so far it has not been possible for the buyers to work up specifications. One barge inquiry is current from the United States engineers' office, Pittsburgh, for three steel deck barges involving approximately 600 tons. Bids were opened Jan. 8 in the office of the United States engineers, Cincinnati, on two steamboats on which the Charles Ward Engineering Works, Charleston, W. Va., bid $140,900.

Nashville Bridge Co. is low bidder on constructing two towboats for United States engineers on the Ohio river. Howard Shipyards & Dock Co., Madison, Ind., is low bidder on constructing the steel hulls. If the Howard bid is accepted the government will build the superstructure.

Plate Orders Flowing In

Philadelphia, Jan. 13.—A steady flow of plate orders, together with rollings on orders placed in November and December, are sufficient to enable eastern mills to maintain operations at 60 to 75 per cent. One maker which is operating at 75 per cent is unable to make deliveries on new business under four weeks. Generally mill operations exceed open-hearth output, owing to good size stocks of ingots. The minimum price now is 2.00c, Pittsburgh. Small lots are bringing as high as 2.25c, Pittsburgh.

Some Tonnages In Sight

Cleveland, Jan. 13.—Some fabricators in this district are interested in the large riveted water line for St. Louis requiring 14,000 to 15,000 tons, bids for which are gong in today. Another lake freighter is being figured on by the yards requiring, it is estimated, about 5000 tons. New tonnage in plates has not been so active but the mills all report a good backlog and some of them are out of the market for the time being. This is causing a firm price situation with a minimum of 2.00c, Pittsburgh or 2.19c, Cleveland, and running up to 2.20c, Pittsburgh, which now is quoted by some eastern mills.

St. Louis Tonnage Large

Chicago, Jan. 13.—Bids were opened today at St. Louis on a water supply project requiring 15,000 tons of plates over a period of two years. From the Southwest come reports of important oil storage tank programs. In the past week about 1500 tons of plates have been placed for tank work. Approximately 8000 freight cars requiring about 80,000 tons of finished material, mostly plates, are before Chicago district builders. The plate price is unchanged at 2.20c, Chicago.

PLATE CONTRACTS PLACED

300 tons, plain material, 200,000 cubic foot gas holder for Grand Haven Gas Co., Grand Haven, Mich., and 100,000-cubic foot holder for Petosky Bay Shore Gas Co., Petosky, Mich., to Stacey Mfg. Co.

PLATE CONTRACTS PENDING

1500 tons, 18 storage tanks for Pan American Petroleum Corp., Oakland, Calif., terminal; pending.

600 tons, three steel-deck barges, United States engineers, Pittsburgh; bids being taken.

Sheet and Tin Mill Wage Rates Are Lower

The average sales price of No. 26, 27 and 28 gage black sheets in November and December made by independent mills having contract relations with the Amalgamated Association of Iron, Steel and Tin Workers was 3.40c, compared with 3.45c in the two months preceding. This results in a slight reduction in wages of sheet and tin plate mill workers, from 39 per cent above base, to 37½ per cent above. Further price comparisons and their effect on wages for the periods designated follow:

January-February, 1925..	3.40c	— 1½	per cent
November-December	3.45c	— 1½	per cent
September-October	3.50c	— 3	per cent
July-August	3.60c	— 3	per cent
May-June	3.70c	— 1½	per cent
March-April	3.75c		unchanged
January-February, 1924..	3.75c		unchanged
November-December	3.75c	+ 1½	per cent
September-October	3.70c	+ 3	per cent
July-August	3.60c	+ 6	per cent
May-June	3.40c	+ 3	per cent
March-April	3.30c		unchanged

Will Build Additional Bar Mills

Youngstown, Jan. 13.—Authorization to proceed with construction of three additional bar mills at the McDonald Works was received today by officials of the Carnegie Steel Co. The company will add a 10-inch shape mill, 12-inch strip mill, and 14-inch bar mill containing the most modern equipment.

These additions, to cost about $2,000,000, will give the Carnegie company 21 bar mills in the Mahoning valley. Electric current to drive the units will be supplied from the Ohio works of the company at Youngstown, O. Buildings to house the units were erected some time ago. The new mills will employ about 450 men.

A report is current that the company may abandon the bar mills at the Upper and Lower Union works which were built in 1871 and 1863 respectively.

An increase in the capital stock of the McWayne Cast Iron Pipe Co., 3600 North Eleventh Ave., Birmingham, Ala., from $200,000 to $300,000, has been recently announced by officials, plans being underway for the expansion of the company's manufacturing activities during the coming year.

Concrete Prospects Better

Heavy Demand for 1925 Roadwork Beginning To Appear—Spring Building Projects Forecast Increased Buying—Prices Steadily Strengthening

REINFORCING BAR PRICES, PAGE 191

Philadelphia, Jan. 13.—Concrete bars are being sold here at low prices in some instances. One lot of 1000 tons is reported to have been sold here within the past week at 2.27c, delivered, which includes cutting to lengths and delivery by truck floor by floor as required. This price is equivalent to 1.95c, base Pittsburgh. The same price was done on another lot of 100 tons. Prices generally range from 2.00c to 2.10c, Pittsburgh for mill shipment and 2.80c, base out of Philadelphia stocks.

Awards Showing Improvement

Cincinnati, Jan. 13.—Placing of reinforcing bar business was better during the past week than for some time. Inquiries appeared in better volume leading to the belief that business in this vicinity may approach normal shortly. Considerable business has been pending mostly for small lots. Much of this is likely to be closed when the weather breaks. The regular market on new steel bars still is quotable at 2.10c, Pittsburgh base.

Road Work More Important

Pittsburgh, Jan. 13.—Dullness characterizes the present reinforcing concrete bar market, awards being fewer since the first of the new year than in any two weeks for several months past. Between 2500 and 3500 tons of concrete bars are involved in Pennsylvania state road work now up for letting. The Koppers Co. is negotiating for an unstated tonnage of bars for a by-product coke plant in the Birmingham, Ala. district. Statistics published by the state highway commission show that during 1924 there were 567 miles of concrete roads laid in Pennsylvania and this involved the use of 14,175 tons of reinforcing concrete bars. It is estimated that similar work contemplated for 1925 will require a minimum of 25,000 tons.

Quiet Continues at Cleveland

Cleveland, Jan. 13.—Quietness continues in the local reinforcing concrete bar market. Road work programs although active in other states have received a setback in Ohio due to gubernatorial economy schedules. Inquiries were few last week. Market sentiment is cheerful but definite orders requiring large tonnage are lacking. New billet bar prices are firm at 2.29c Cleveland or 2.10c, Pittsburgh. Rail steel bars are steady at 1.90c, mill, no test being offered. Out of warehouse new billet bars are firming to 2.50c, Pittsburgh and 3.10c, Cleveland.

Expect More Jobs To Mature

Chicago, Jan. 13.—Reinforcing concrete bar awards have been rather light in the past week but a number of jobs which have been pending are believed to be nearing the point where they will be placed in a week or ten days. Upward of 3000 tons of bars may be required for a Sears, Roebuck & Co. warehouse at Kansas City. Sellers now are figuring two more sections of the South Water street double-decking project. The general contract for the water works improvement at Springfield, Ill., which will take 620 tons, has been let and the bars probably will come out shortly. One seller of reinforcing bars is reported to have dipped under 2.60c, Chicago warehouse, for carload business but other sellers claim they are adhering to the 50-cent spread over the mill price of billet bars.

CONCRETE CONTRACTS PLACED

Awards this week	4,565 tons
Awards last week	6,055 tons
Awards two weeks ago	1,930 tons

1000 tons, Overbrooke high school, Philadelphia, to Pittsburgh Crucible Steel Co. Cramp & Co., general contractors.
450 tons, theater at Fresno, Calif., to Kyle & Co.
425 tons, buildings for General Petroleum Corp., Parr Terminal, Oakland, Calif., to Edw. L. Soule Co.
350 tons, Paseo high school, Kansas City, Mo., to the Concrete Steel Co.
300 tons, approaches on Camden side of Delaware river bridge, Philadelphia, to Concrete Steel Co.
300 tons, warehouse at Fresno, Calif., to Kyle & Co.
250 tons, hotel at Easton, Pa., to Kalman Steel Co. Moore & Co., general contractors.
240 tons, Koss Construction Co., Des Moines, Iowa, reported awarded to a Pittsburgh district mill.
200 tons, high school at Muskegon, Mich., to the Truscon Steel Co.
150 tons, St. Lukes hospital, Cedar Rapids, Iowa, to the Concrete Engineering Co.
100 tons, laundry, Watertown, Mass., to Concrete Steel Co. General contract to J. J. Prindiville Co., Framingham, Mass.
100 tons, addition to Homeopathic hospital, Pittsburgh, to the Electric Welding Co.; D. T. Riffle, Pittsburgh, general contractor.
100 tons, Fireman's Fund building San Francisco, to Badt-Falk Co.
100 tons, Walton school addition, Philadelphia, to Concrete Steel Co.
100 tons, In-let Terrace hotel, Daytona, Fla., to American Steel Engineering Co.
Tonnage unstated, school at Allentown, Pa., to Truscon Steel Co.

CONCRETE CONTRACTS PENDING

3000 tons, warehouse at Kansas City for Sears, Roebuck & Co., Chicago. George C. Nimmons & Co., 122 South Michigan avenue, Chicago, architects.
3000 tons, Pennsylvania state highway commission road work; bids now being taken, lettings to start about Jan. 25.
1000 tons, University of Pittsburgh athletic stadium; bids being taken to Jan. 19 on the superstructure by Stone & Webster, Inc., Boston, contracting engineer.
1000 tons, pier No. 50, harbor board, San Francisco; Clinton Construction Co., general contractor. Steel not yet placed.
800 tons, warehouse for harbor board, San Francisco; K. E. Parker Co., general contractor; steel not yet placed.
750 tons, Dumbarton bridge, San Francisco, Healy & Tibbetts, general contractors. Steel not yet placed.
700 tons, building for Southwestern Bell Telephone Co., St. Louis; pending.
620 tons, waterworks, Springfield, Ill.; Cope & Sons, Decatur, Ill., general contractors.
600 tons, Elk's building, Boston; bids being taken.
500 tons, road work for Pennsylvania state highways department; pending.
400 tons, building for South Water Street Removal Co., Chicago, to Truscon Steel Co.; this award is contingent on job going forward. Blome-Sinek Co., 139 North Clark street, Chicago, contractor.
400 tons, California State Automobile association building, San Francisco; bids being received.
400 tons, third unit of Union Electric Co. plant at Cahokia, Ill.; pending.
300 tons, Central National bank, Oakland, Calif.; bids in.
300 tons, Hochschild & Kohn store, Baltimore; general contract awarded Consolidated Engineering Co., that city.
280 tons, Commercial Savings building, Oakland, Calif., bids being received.
276 tons, Sellwood bridge, Portland, Oreg.; bids in.
276 tons, Ross island bridge, Portland, Oreg.; Gelpin Co. low bidder on general contract.
200 tons, Oakland Elks club, Oakland, Calif; bids being received.
175 tons, Alamo school, San Francisco; bids opened.
175 tons, school at Elkins Park, Pa., J. Y. Loux, general contractor.
150 tons, Roosevelt school, Allenton, Pa.; pending.
150 tons, Pacific Meter Co., Eleventh and Bryant streets, San Francisco; bids being received.
100 tons, Walton school addition, Philadelphia; pending.
Tonnage unstated, 12-story apartment building at 420 Oldine avenue, Chicago, for W. J. La Suy, 915 Milwaukee avenue, Chicago; pending.
Tonnage unstated, 8-story warehouse for Household Fair Furniture Co., 1012 Walnut street, Kansas City, Mo. Plans by Greenbaum, Hardy & Schumacher, 216 Scarritt building, Kansas City, Mo.
Tonnage unstated, school for Duluth board of education. Plans by Holstead & Sullivan, 410 Palladio building, Duluth.
Tonnage unstated, 8-story bank and office building for American National bank, Wausau, Wis. Plans by Childs & Smith, 720 North Michigan avenue, Chicago.
Tonnage unstated, 9-story office building for D. H. Burnham & Co., Randolph & La Salle streets, Chicago. Plans by same company.
Tonnage unstated, theater for Ure Building Corp. by Ballaban & Katz, 175 North State street, Chicago. Plans by C. W. & G. L. Rapp, 190 North State street, Chicago. Previously reported but now financed.
Unstated tonnage, the Koppers Co., Pittsburgh, for a by-product coke plant project in the Birmingham, Ala., district; bids being taken.
Unstated tonnage, Camden approach of Delaware river bridge, Philadelphia; concrete piling to Raymond Concrete Piling Co., New York.
Unstated tonnage, Scranton Times building, Scranton, Pa., Dwight P. Robinson & Co., Inc., New York, general contractor.

Pipe Specifications

Flow to Mills in Good Volume—Larger Cast Sales Expected

PIPE PRICES, PAGE 191 AND 246

Pittsburgh, Jan. 13.—Standard full weight merchant pipe buyers continue to send in specifications at a good rate. Deliveries are deferred only slightly on some sizes, hence there is no particular rush to get positions on mill order books. Jobbers are maintaining well balanced stocks. Pipe mills are able to operate at 70 to 75 per cent of capacity. Pipe and other tubular goods for gas well exploitation is more extensive as to tonnage than present buying of oil country goods. For several months orders have come through from the Sheridan gas fields near Dunkirk, N. Y., where perhaps 75 wells have been drilled, each taking two to three carloads of pipe. Another gas field near Bentleyville, Pa., has developed several wells producing 4,000,000 to 7,000,000 feet per day, and this has occasioned the purchase of fairly large pipe tonnage. Oil country goods, line pipe, etc., promise to grow in demand in point of tonnage as the weather improves in the various oil producing centers. Recent price increases in oil are causing operators to lay their plans for spring expansion. In the South, activity is somewhat hampered by rainy weather.

The situation in seamless boiler tubes still leaves much to be desired although demand is somewhat improved. As many as three to five extra 5 per cent discounts still are being granted. On locomotive boiler tubes where on the base size of 2-

inch 11-gage the printed schedule shows 16 cents per foot, the market has firmed up to 14 cents for the largest users whereas it had gone as low as 12½ cents. Boiler tube makers are operating at 70 per cent of capacity.

Market Reflects Seasonal Dullness

New York, Jan. 13.—Cast iron pipe makers are expecting the local department of water, gas and electricity to enter the market this week on several thousand tons for replenishing supplies at municipal yards. Demand generally reflects seasonal influences. The advance in pig iron and certain other raw materials is tending to hold the pipe market firm.

Claim $42 Base Minimum

Chicago, Jan. 13.—Makers of cast iron pipe declare that $42, Birmingham, is the minimum, making the Chicago delivered price on 6-inch pipe and over $50.20 and on 4-inch pipe $54.20. The Detroit tonnage of 5200 tons is expected to be divided evenly between the United States Cast Iron Pipe & Foundry Co. and James B. Clow & Sons. Within a few days nearly 2000 tons in contractors' jobs in Chicago suburbs should be closed.

Winter Buying About To Start

Birmingham, Ala., Jan. 12.—Cast iron pipe manufacturers in the Birmingham district received better awards during the past week. Heavy specifications are in sight. Quotations are on a base of $40 for 6-inch, and over.

CAST IRON PIPE PLACED

2519 tons, 24-inch class B and C pipe for Los Angeles, specification 740-A, to American Cast Iron Pipe Co.

1300 tons, department of water, gas and electricity, New York, awarded through Nicholas De Stefano, general contractor, to the United States Cast Iron Pipe & Foundry Co.

1200 tons, water supply lines in Hamilton county, O., through Crumley, Jones & Crumley Construction Co., Cincinnati, general contractor, to United States Cast Iron Pipe & Foundry Co.

924 tons, 20-inch class B pipe for Long Beach, Calif., to United States Cast Iron Pipe & Foundry Co.

750 tons, 6 to 16-inch class B pipe for Spokane, Wash., to National Cast Iron Pipe Co.

577 tons, 4 to 16-inch class B pipe for Alhambra, Calif., to National Cast Iron Pipe Co.

250 tons, Menasha, Wis., to National Cast Iron Pipe Co.

245 tons, 4 to 8-inch class B pipe for Burlingam, Calif., to Grinnell Co. of the Pacific, who will furnish Belgian pipe.

109 tons, 4 and 6-inch class B pipe for Paso Robles, Calif., to McWane Cast Iron Pipe Co.

CAST IRON PIPE PENDING

3500 tons, Portland, Oreg.; bids in.

3115 tons, 3060.4 tons, 54-inch straight pipe, 21.75 tons 54-inch lugged pipe and 32.9 tons special castings, class C for Milwaukee; bids in Jan. 19.

2500 tons, 4 to 24-inch class B pipe for Portland, Oreg.; United States Cast Iron Pipe & Foundry Co. low bidders.

1970 tons, 6 to 18-inch class B and C pipe for Newport Beach, Calif.; bids in.

1162 tons, 6 to 12-inch class B, C and D pipe for Glendale, Calif.; bids open Jan. 15.

800 tons, Chicago; bids in Jan. 22.

750 tons, 4 to 12-inch class C pipe for Anaheim, Calif.; bids in.

245 tons, 4 to 8-inch class B pipe for Burlingame, Calif.; informal bids opened.

215 tons, 4 to 8-inch pipe for Sacramento, Calif.; bids opened Jan. 15.

56,000 feet of pipe, 20,000 feet ½-inch, 30,000 feet, ¾-inch, 5000 feet, 1-inch and 500 feet each of 3 and 6-inch galvanized wrought iron pipe; pending.

13,500 feet, 11,500 centrifugal pipe and 2000 feet 4-inch sand cast pipe for Appleton, Wis.; bids in Jan. 16.

Sheets Firm; Sales Small

Good Specifications Supporting Mill Operations at About 80 Per Cent—More Tonnage Expected from Automotive Users

SHEET PRICES, PAGE 191

Youngstown, O., Jan. 13.—Sheet prices are firm at 2.70c for blue annealed, 3.60c for black and 4.75c for galvanized. While new business is being booked on this basis the volume is more or less confined to small lots. Consumers of galvanized are meeting with difficulty in getting requirements entertained, one buyer this week being unable to find a source which would supply two carloads of an attractive specification. Sheet producers have contracts on their books which if completely filled will afford attractive operation during this quarter. In some cases specifications are coming out in sufficient quantity to determine rolling schedules two weeks in advance while in other directions mills are compelled to request specifications to lay out advanced schedules. This condition has given the market the appearance of quietness. Producers of high grade sheets expect more tonnage to be placed by the automotive industry soon. This grade is firm at 4.75c and while tonnage is being entered at this figure the volume must gain momentum to show profitable business this quarter. Sheet mill operation in this district this week is at 88 per cent of capacity. This is slightly higher than a week ago owing to the resumption of three mills recently suspended because of mechanical difficulty.

Demand Slows Up

New York, Jan. 13.—New business in sheets, and specifications of first quarter contracts are small. It is known that consumption is fairly heavy and the slowing up of demand is the consequence of the heavy specifications on fourth quarter contracts which were made the latter part of December, as well as the annual inventory taking period. The blue annealed market is strongest and the minimum on this grade is 2.70c, base Pittsburgh, while sales of small tonnages are being made right along at 2.80c. Makers feel that any material increase in buying will result in establishing the 2.80c price as minimum. The mills, however, need business in black and galvanized to keep their schedules up so that these grades reflect the weak spots. It is easy to buy black sheets at 3.50c base Pittsburgh for early rolling and galvanized at 4.65c.

Shipments on Contracts Heavy

Pittsburgh, Jan. 13.—As in other lines of finished steel, mill activity in sheets consists chiefly of shipments on contracts, liberal specifications continuing to be received. New business is somewhat limited although occasionally orders are taken involving 300 to 500 tons at a time. Smaller orders are more frequent. The specifications referred to are heavy except possibly on full finished automobile sheets, and enable sheet mills to maintain an operating average in excess of 90 per cent. The American Sheet & Tin Plate Co. is operating at practically 88 or 90 per cent and while some independents are lower, others are higher. Sheet producers all claim that if sheet bars for the second quarter remain as strong in price as they are at the moment, namely $40 or higher, further price increases will have to be made in sheets, particularly blue annealed. At present these remain unchanged at 2.70c. While the leading interest is firm on black sheets at 3.60c, from independent sources quotations of $2 per ton less still are developing and undoubtedly tonnage could be placed at 3.50c. Concessions are less extensive in galvanized sheets, which are quoted at 4.75c, and so far as can be learned here no lower quotations are made openly. Full-finished automobile sheets are held at 4.75c. Occasional orders for electrical sheets come through and from time to time business develops in the export market for various grades although these export orders are not running into tonnage as they did in the closing months of last year. Progress is being made in connection with the sheet simplification program which is sponsored by practically all sheet producers.

Only Adding To Contracts

Chicago, Jan. 13.—One maker of sheets in the Chicago district is substantially booked over the rest of the quarter on all three grades and is taking business that it can fit in its schedule or where it constitutes an addition to tonnage already placed. It now seems probable that prices will not be changed until mills are ready to book for the second quarter. Western delivered prices figure back to 4.85c, base Gary and Indiana Harbor, for galvanized, 3.70c for black and 2.80c for blue annealed.

Specifications Backward

Philadelphia, Jan. 13.—Sheet specifications have not yet really started for the first quarter, due not only to inventory taking but to heavy tonnages taken on fourth quarter contracts prior to Jan. 1. New demand is quiet, hence bargains still can be had. Black ranges from 3.50c to 3.65c, Pittsburgh, and galvanized from 4.60c to 4.75c. Blue annealed is firm at 2.70c Pittsburgh, with 2.80c on small sales. In some cases western makers located elsewhere than in Pittsburgh are quoting mill prices.

Hanna Co. Buys Control of Tod-Stambaugh

The M. A. Hanna Co., Cleveland, has acquired a controlling interest in the Tod-Stambaugh Co., Cleveland, through the purchase of the interest of Frank Billings, president, of the latter company. Mr. Billings will retire.

The Tod-Stambaugh Co. operates seven iron ore mines in the Lake Superior district, and in addition has an iron ore reserve in Minnesota. Its principal interests are in iron ore properties. The company will continue its corporate existence and will operate its properties, although there will be a closer association with the Hanna company. The Tod-Stambaugh Co. was organized by John Tod, son of David Tod, Ohio's Civil war governor, shortly after the Civil war.

Shape Activity Strong

Chicago Warehouse Takes 10,000 Tons—High Volume of Orders Continues and Inquiries Are in Undiminished Numbers—Prices Stiffen

STRUCTURAL SHAPE PRICES, PAGE 191

Chicago, Jan. 13.—The American Bridge Co. has taken the biggest structural steel contract awarded in several weeks in the 10,000 tons for the Hibbard, Spencer, Bartlett & Co. warehouse at Chicago. Announcement is expected in a few days of the refinancing of the South Water Street Removal Co. commission market project, which requires about 9900 tons of structurals. Most fabricators now have more business before them than they can estimate; they are increasingly choice of the business they are taking and evidently do not want to commit themselves except at a satisfactory price in view of the probable big building market in the spring. A number of jobs involving around 1000 tons, which have been hanging fire for some weeks, are expected to be placed within the next 10 days. The market on plain material is quoted at 2.20c, Chicago.

Market Activity Holds

Boston, Jan. 13.—Activity in the structural market continues along encouraging lines. Local contracts let during the past week totaled close to 5000 tons and much new work still is being figured. Prices are strengthening and eastern mills are rapidly completing their rolling schedules for the first quarter. Plate delivery has jumped from two to six weeks since Jan. 1. Leading mills are asking 2.15c, Pittsburgh or 2.515c delivered for plates, though some business still is being taken at 2.00c Pittsburgh. Shapes in small lots are firm at 2.10c.

Some Fabricators Need Tonnage

Pittsburgh, Jan. 13.—Some structural shops in this vicinity stand sorely in need of tonnage. Awards have been few and while plain material is firm at 2.10c f.o.b. Pittsburgh district mills, bids on material fabricated and erected still would indicate that sacrifices in other directions are being made. The largest award of the week was 1250 tons for the Turtle Creek bridges, placed by county commissioners with the Independent Bridge Co. Several large bridge and office propositions are in the tentative stage.

New Work Sets Record

Cincinnati, Jan. 13.—Featuring the local structural shape market for the past week was the award of 1200 tons required for the new plant of the Champion Coated Paper Co. at Hamilton, O. to the Indiana Bridge Co. No other contracts involving large tonnages were awarded, a fair amount of small work constituting the market. Several fabricators report more work on the boards at present than ever before for this time of the year. Plain material prices continue unchanged.

Municipal Work Is Heavy

New York, Jan. 13.—Municipal work again features local structural inquiry, 8300 tons having been brought out during the past week for subway extensions. Including the Flushing bay bridge and three schools there is now about 18,000 tons of city construction actively pending. Inquiry generally is relatively light as compared with two or three weeks ago. One of the largest individual orders in sometime was placed recently, but details have not been announced as yet. Shapes may still be quoted at a range equivalent to 2.00c to 2.10c, Pittsburgh, with the tendency upward. The belief appears general in the trade that the market is heading toward a 2.25c, Pittsburgh, level.

Philadelphia Now 2.00c to 2.10c

Philadelphia, Jan. 13.—The plain structural shape market here is the dullest in some time. The price is regarded as 2.00c to 2.10c, Pittsburgh, but no real test is offered. Mill operations are well maintained on deliveries already on order books.

Signs of Spring Activity

Cleveland, Jan. 13.—Structural shape activity is limited mostly to figuring on projects contemplated for spring maturity. Whitehead & Kales Iron Works, took the largest award in 7000 tons for a hotel at Detroit. Few new inquiries are in a definite state, most being for later action. Awards are confined to small tonnages. Plain material is firm at 2.29c Cleveland or 2.10c Pittsburgh.

STRUCTURAL CONTRACTS PLACED

Building awards this week ..... 50,313 tons
Building awards last week ..... 57,183 tons
Building awards two weeks ago .. 54,795 tons

10,000 tons, warehouse for Hibbard, Spencer, Bartlett & Co., Chicago, to the American Bridge Co. Graham, Anderson, Probst & White, 80 East Jackson boulevard, Chicago, architects.

7000 tons, hotel, Detroit, to Whitehead & Kales Iron Works, through Lundoff-Bicknell Co., Cleveland, general contractor. C. Howard Crane, Detroit, architect.

4500 tons, Barker Bros. building, Seventh and Flower street, Los Angeles, through Scofield Engineering Co., Pacific Finance building, general contractor, to Llewellyn Iron Works.

3000 tons, Pennsylvania railroad bridge at Beaver, Pa., to Mt. Vernon Bridge Co.

1525 tons, Pacific National Bank building, Los Angeles, to Union Iron Works.

1500 tons, bridge and other work for the Rock Island railroad, to the American Bridge Co.

1500 tons, Tower theater, Chicago, to A. Bolter's Sons. Fridstein & Co., 111 West Washington street, Chicago, architects.

1300 tons, hotel at Thirty-seventh street and Lexington avenue, New York, to Taylor-Fichter Steel Construction Co.

1250 tons, Turtle Creek bridge, Lincoln highway near Pittsburgh, to the Independent Bridge Co.

1200 tons, plant addition, Champion Coated Paper Co., Hamilton, O., to Indiana Bridge Co.

1200 tons, academy of medicine, New York, previously awarded unnamed fabricator went to Taylor-Fichter Steel Construction Co.

1200 tons, loft at West Thirty-fifth street, New York, to Harris Structural Steel Co.

1100 tons, apartment, 390 Beacon street, Boston, to New England Structural Co.

1080 tons, Eagles Temple, Ballard, Wash., to Minneapolis Steel & Machinery Co.

1000 tons, power house for Shreveport Gas & Electric Co., Shreveport, La., to Worden-Allen Co.

1000 tons, plant for Wabash Portland Cement Co., at Osborn, O., to Jones & Laughlin Steel Corp.

1000 tons, Chartiers Creek bridge at McKees Rocks, Pa., to Walter S. Rae, general contractor; steel tonnage reported placed with McClintic-Marshall Co.

900 tons, building for the Imperial Sugar Co., Sugarland, Tex., noted previously as placed, went to the Houston Structural Steel Co.

750 tons, theater and office building, New Orleans, to the Harris Structural Steel Co.

500 tons, theater, Hiland and Hollywood streets, Los Angeles, to Baker Iron Works.

500 tons, exhibition building for the chamber of commerce, Huntington, W. Va., awarded the Huntington Iron Works.

500 tons, bridge for Philadelphia & Reading, Schuylkill Haven, Pa., to McClintic-Marshall Co.

480 tons, Inlet Terrace hotel, Daytona, Fla., to Fort Pitt Bridge Works.

450 tons, police station, ninety-second precinct, New York, to Communipaw Steel Co.

400 tons, Elliot apartment building, Boston, to New England Structural Co.

400 tons, Maryland apartment building, Boston, to New England Structural Co.

400 tons, bridge repairs, New York Central, awarded unnamed fabricator.

400 tons, bank for the Peoples Trust Co., Brooklyn, N. Y., to the National Bridge Works.

400 tons, Pennsylvania railroad bridge, East St. Louis, Ill., to McClintic-Marshall Co.

325 tons, St. Casimir school, Yonkers, N. Y., to Bethlehem Fabricators, Inc.

314 tons, addition to Bliss & Laughlin, Harvey, Ill., to the McClintic-Marshall Co.

300 tons, office, Long Island City, N. Y., to George A. Just Co.

300 tons, Burlington railroad bridge spans, to Hansell-Slcock Co.

250 tons, Star garage, Bradford, Pa., to Jones & Laughlin Steel Corp.

250 tons, addition to Museum of Fine Arts, Boston, to New England Structural Co.

250 tons, Pennsylvania Cement Co. warehouse at Portland Point, N. Y.; to R. S. McMannus Steel Construction Co.

200 tons, Pennsylvania railroad bridge, Greensburg, Pa., to the American Bridge Co.

200 tons, hydroelectric plant at Halawaka, La.; to the Converse Bridge & Structural Co.

200 tons, factory for the Gowanus Realty Co., Brooklyn, N. Y., to the American Bridge Co.

200 tons, Baltimore & Ohio bridge, East St. Louis, Ill., to the McClintic-Marshall Co.

200 tons, department store for D. M. Read, Bridgeport, Conn., to a local shop.

200 tons, roaster building for the Tennessee Copper Co., Copper Hill, Tenn., to the Converse Bridge & Structural Co.

170 tons, city of Cleveland, garage, to Fort Pitt Bridge Works through Schrader Construction Co.

150 tons, Missouri Pacific railroad bridge at McArthur, Ark., to the American Bridge Co.

140 tons, skullcracker building for Otis Steel Co., Cleveland, to McClintic-Marshall Co.

135 tons, three 24 x 70-foot plate girder spans by the Wickes Engineering Co., for Iowa State highway commission road work, Ames, Iowa, to Des Moines Steel Co.

126 tons, Masonic temple at Gary, Ind., to unstated fabricator.

125 tons, department store in Greensburg, Pa., to Jones & Laughlin Steel Corp.

120 tons, S. & T. garage, Cambridge, Mass., to New England Structural Co.

120 tons, power house, Holyoke, Mass., to Eastern Bridge & Structural Co.

103 tons, plant addition, for Cambridge Cement Block Co., Cambridge, Mass., to New England Structural Co.

100 tons, Oaks theater, Berkeley, Calif., to Central Iron Works.

100 tons, manufacturing building for Baldwin Chain Co., Auburn, Mass., to Eastern Bridge & Structural Co.

100 tons, Pennsylvania railroad bridge, Highland avenue, Pittsburgh, to the Fort Pitt Bridge Works.

100 tons, through H. K. Ferguson Co., Cleveland, engineer, for plant of Kellogg Co., Battle Creek, Mich., and building for Andes Range & Furnace Co., Inc., Corry, Pa., to Rogers Structural Steel Co.

STRUCTURAL CONTRACTS PENDING

16,000 to 17,000 tons, Carquinez Straits bridge, San Francisco bay; bids will be called for soon.

8300 tons, two subway extensions along St. Nicholas avenue, New York; board of estimate closes bids the latter part of this month; one section will take 5000 tons and the other 3300 tons.

5000 tons, Southern California Athletic club, Los Angeles; bids in.

3000 tons, Central National Bank, Oakland, Calif.; bids in.

2800 tons, Seamen's church institute, New York;

Post & McCord, erectors.
2000 to 3000 tons, five buildings for McKinney Steel Co., Cleveland; plans expected out shortly.
1600 tons, buildings for Inspiration Copper Co.; Inspiration, Ariz.; pending.
1500 tons, Liberty bridge over Monongahela river at Pittsburgh; bids to be taken as soon as federal engineers approve plans.
1500 tons, electric light poles for export to Colombia, South America; pending.
1250 tons, school No. 105, New York; T. A. Clark, general contractor, expected to close this week.
1225 tons, Ross Island bridge, Portland, Oreg.; bids in Feb. 1.
1100 tons, Y. M. C. A. on Embarcadero, San Francisco; bids being received.
1100 tons, warehouse for Cadillac Corp., Atlantic avenue, Brooklyn, N. Y.; pending.
1000 tons, sugar refinery at Sidney, Mont.; pending.
1000 tons, Citizens Mortgage building, Los Angeles; bids being received.
950 tons, school No. 86, Bronx, N. Y.; bids close Jan. 27.
950 tons, theater at Sheridan road and Devon avenue, Chicago. Plans by Levy & Klein, 111 West Washington street, Chicago.
700 tons, Elks club, Boston; pending.
640 tons, apartment, 912 Fifth avenue, New York, for Solomon & Sons, Knickerbocker building, builders; pending.
600 tons, Memorial building, university, Augusta, Me.; bids asked.
550 tons, shops for the Delaware, Lackawanna & Western, Buffalo, award expected immediately.
500 tons, building, Knights of Columbus, Columbus, O.; Middle States Construction Co. awarded general contract.
408 tons, Sellwood bridge, Portland, Oreg.; Gelpin Co. low bidder on general contract.
400 tons, addition to Lackawanna railroad shops, Buffalo, N. Y.; pending.
380 tons, bridge at Puyallup, Pierce county, Wash.; bids open Feb. 1.
350 tons, Elks building, Huntington, W. Va.; bids being taken.
350 tons, Holy Trinity catholic school, Yonkers, N. Y.; pending.
350 tons, Schwartz & Gross apartment, 111 East Seventy-fifth street, New York; pending.
348 tons, Commercial club, San Jose, Calif.; bids being received.
300 tons, garage for Auto Touring Co., Los Angeles; bids in.
300 tons, school No. 35, Brooklyn, N. Y.; bids close Jan. 21.
300 tons, reinforcing material for elevated railways in Brooklyn, bids asked.
300 tons, lock No. 51 Ohio river, Golconda, Ill.; bids closed Jan. 12 by United States engineers, Louisville, Ky.
300 tons, Museum, Reading, Pa.; pending.
250 tons Telephone building, Burlingame, Calif.; bids being received.
250 tons, theater, Woonsocket, R. I.; bids being taken.
200 tons, United Bank & Trust Co., Sacramento, Calif.; bids in.
200 tons, Pennsylvania railroad bridge in Ohio; bids asked.
200 tons, hospital, Stamford, Conn.; bids being taken.
200 tons, warehouse for Joseph Woodwell Co., 235 Second avenue, Pittsburgh; general contract awarded Pittsburgh Engineering & Construction Co.
200 tons, Woodland avenue branch of the Union Trust Co., Cleveland; plans being revised.
175 tons, New York Edison Co. substation, West Eighty-fourth street, New York; pending.
155 tons, Elks club, Santa Barbara, Calif.; bids being received.
150 tons, high school, Marlboro, Mass; bids in.
150 tons, State bank, Newark, N. J.; pending.
150 tons, New York Edison Co. substation, West Sixty-fourth street, New York; pending.
150 tons, Pharmaceutical building, Indianapolis; bids in.
120 tons, high school, Norwood, Mass.; bids in. General contract let.
100 tons, George Washington school, Mt. Vernon, N. Y.; pending.
100 tons, Auburn bridge, King county, Wash.; bids opened.
Tonnage unstated, 8-story building for C. A. Dunham Co., 230 East Ohio street, Chicago. Plans by D. H. Burnham Co., Randolph and LaSalle streets, Chicago.
Tonnage unstated, 20-story addition to Atlantic hotel, 316 South Clark street, Chicago. Plans by Frederick J. Teich, 64 West Randolph street, Chicago.

The McRae Steel Co., Detroit, plans a steel warehouse building.

Car Inquiries Heavy

New York Central Seeks 5000, Lackawanna 1000 and Union Pacific 1000—New England Roads Buy 50,000 Tons of Rails

RAILROAD TRACK MATERIAL PRICES, PAGE 191

Chicago, Jan. 13.—Including the 5000 cars for which the New York Central is inquiring and the 1000 each of the Union Pacific and the General Refrigerator Line, between 8000 and 8500 cars are before Chicago district builders. The Union Pacific inquiry for 500 each of flat cars and gondolas is expected to be supplemented shortly. The Cotton Belt and the Frisco are expected to be in the market shortly. Practically all of the 70,000 tons of finished steel involved in the recent Baltimore & Ohio and Burlington orders have been placed with a Chicago steel interest.

The Chesapeake & Ohio is understood to be figuring on 30,000 tons of rails to be divided evenly between eastern and western mills. The Cotton Belt is closing on its 11,000-ton inquiry. The Burlington has placed 4200 tons of tie plates. A maker of light rails has booked 500 tons.

Close On 1925 Rails

Boston, Jan. 13.—Practically all New England roads have closed for their 1925 rail requirements. This tonnage has been placed with domestic mills despite activity on the part of foreign makers who have offered rails in this market at delivered prices which figure from $7 to $9 a ton under the domestic price. The total rail tonnage contracted for exceeds that placed a year ago. The Bangor & Aroostook railroad has taken 3000 tons, Maine Central 6000 tons, Boston & Maine 13,500 tons, Central Vermont railroad 10,000 tons, and the Boston Elevated railroad 1000 tons.

Car Orders Light

New York, Jan. 13.—While several sizable car lists are under negotiation, actual orders over the past week have been light. Locomotive buying is featured by an order for nine electric engines for the New York Central railroad, this business going to the American Locomotive Co. and the General Electric Co. The Union Pacific placed one locomotive with the American Locomotive Co. and the Belt Railway of Chicago, five switch engines to the Baldwin Locomotive Works.

Bethlehem Steel Co. has booked an order for 14,000 tons of rails for the International & Great Northern railroad. The Grand Trunk Line has bought 15,000 tons of rails for its lines in this country. The Chesapeake & Ohio purchased 15,000 tons of rails, Chicago & Alton 8000 tons, Soo line 7500 tons, and The Pere Marquette 5000 tons. The Glen Alden Coal Co. has bought 2500 tons of light rails for its mines. New York Central closed on 6000 tons of tie plates and the Chicago, Burlington & Quincy on 4200 tons of tie plates; 2000 kegs of spikes and 15,000 kegs of bolts. The Atlantic Coast Line recently placed 30,000 tons.

Unable To Inaugurate Advance

Pittsburgh, Jan. 13.—Producers of billet-rolled light rails find it difficult to obtain advances on their product commensurate with the higher figures inaugurated and procured in other finished steel lines by reason of advanced costs.

From 1.80c to 1.90c is quoted on the billet-rolled product but 1.80c is usually the closing figure. Relaying rails still are quoted at $27 to $30.

Track accessory demand shows little life. Prices below 3.90c have disappeared on standard track bolts, 3.90c to 4.00c now being quoted. Standard spikes are 2.90c; small spikes, 3.20c; boat and barge spikes, 3.25c; and tie plates, 2.35c to 2.50c depending upon the specifications.

Await Rail Distribution

Cleveland, Jan. 13.—Distribution is expected shortly on the 22,000 tons of rails authorized sometime ago for the Nickel Plate system. This will include the requirements of the Nickel Plate proper, Lake Erie & Western and the Clover Leaf. The last road will require about 5000 tons. The Lima Locomotive Works has taken two locomotives for the Michigan Alkali Co. and the Chicago & Western Indiana has placed five locomotives reported to have gone to the Baldwin Locomotive Works.

CAR ORDERS PLACED

American Steel & Wire Co., 14 gondolas, to American Car & Foundry Co.
Bloedel-Donovan Lumber Mills, Seattle, 80 logging cars, to Pacific Car & Foundry Co.
Lehigh & New England, conversion of 197 gondolas into box cars, to the Pressed Steel Car Co.; coach to American Car & Foundry Co.
Missouri Pacific, 36 cars, 21 baggage, passenger and mail cars to the American Car & Foundry Co. and 15 to the Pullman Car & Mfg. Corp.
Norfolk & Western, 1583 gondolas being rebuilt, 800 by Virginia Bridge & Iron Co. and 783 by Ralston Steel Car Co.
Northern Pacific, 500 box car underframes, to the Ryan Car Co.
Philadelphia & Reading, 10 cars, 5 baggage and mail cars to the American Car & Foundry Co. and 5 to the Bethlehem Steel Co.
Philips Petroleum Co., Tulsa, Okla., 100 tank cars, to General American Car Corp.
Waite Phillips Co., 100 tank cars, to the General American Tank Car Co.; this is in addition to 50 previously noted.

CAR ORDERS PENDING

Canadian National, 500 automobile box cars; bids asked.
Chicago, Indianapolis & Louisville, 250 hopper cars; bids asked.
Delaware, Lackawanna & Western, 1000 box cars; pending.
Ford Motor Co., Detroit, 475 gondolas and 50 flat cars; pending.
General Refrigerator Line, 1000 refrigerator cars; pending.
Monon, 250 55-ton composite hopper cars; pending.
National Plate Glass Co., 35 gondolas; pending.
New York Central, 3000 box cars and 2000 gondolas; pending.
Oklahoma City-Ada-Atoka, 100 box cars; bids asked.
Pittsburgh railways, 130 interurban cars; pending.
San Paulo Rio Grande, Brazil, 30 miscellaneous freight cars; pending.
Seaboard Air Line, 80 cabooses; pending. This road contemplates rebuilding 1000 box cars.
Swift & Co., Chicago, 150 stock cars; pending.
Union Pacific, 500 50-ton flat cars and 500 50-ton gondolas; pending.
Union Pacific, 40 miscellaneous coaches; pending.
Union railroad, 20 cabooses; pending.

Toluol in Demand

Lacquer Makers Taking Large Supplies —Naphthalene Lower

New York, Jan. 12.—Increasing consumption of lacquer, particularly by the radio industry, has resulted in an unusual demand for toluol. Paint manufactuers who in many instances have never before been particularly interested in this material are buying in good quantities. Some sellers are now out of the spot market, being booked ahead at least a month.

Prices are practically unchanged, at around 26 cents in tanks and 31 cents in drums. Steadiness also prevails in other light oil distillates. Pure benzol is holding at 25 cents works in tanks and 30 cents in drums; 90 per cent benzol 23 cents in tanks and 28 cents in drums; solvent naphtha 25 cents in tanks and 30 cents in drums; and commercial xylol, 26 cents in tanks and 31 cents in drums.

Coke Oven By-Products

	Spot*
Per Gallon at Producers' Plants in Tank Lots	
Pure benzol	$0.25
Toluol	0.26
Solvent naphtha	0.25
Commercial xylol	0.26
Per Pound at Producers' Plants	
Phenol	0.27
Naphthalene flakes	0.05½
Naphthalene balls	0.06½
Per 100 Pounds at Producers' Plants	
Sulphate of ammonia	$2.65 to 2.70
Contract	
Pure benzol	Nominal
Toluol	Nominal
Solvent naphtha	Nominal
Commercial xylol	Nominal
Per Pound at Producers' Plants	
Phenol	$0.25
Naphthalene flakes	0.05½
Naphthalene balls	0.06½

*Spot distillates are subject to shading.

Pure benzol continues in good demand, although nearby supplies can be had without difficulty.

Sulphate of ammonia continues unchanged at $2.65 to $2.70 works for domestic account. This range has prevailed for several weeks. While spot demand is light, contract bookings continue to absorb the bulk of production with the result that supplies are not sufficiently large to depress the market. Few inquiries are noted from abroad and little or no foreign business is being booked. The market on sulphate of ammonia for export account is nominally $2.90 to $3.00, port, for material in double bags.

Gould Companies Sold to Graham Bolt Head

Pittsburgh, Jan. 13.—Charles J. Graham vice president of the Graham Bolt & Nut Co. here, has purchased a controlling interest in the Gould Coupler Co. and the Gould Storage Battery Co., Depew, N. Y. The coupler company is capitalized at $5,000,000 and the battery company at $250,000. The former is a manufacturing plant for couplers, pilot beams, steel castings and electric car lighting equipment. The transaction was made by Mr. Graham personally and none of the companies in which the former is interested in this city is in any way connected with the deal.

The only change in the organization of the two purchased companies will be the retirement of Charles A. Gould, the president, who organized the companies about 50 years ago. He will be succeeded as president by his son, W. S. Gould who now is vice president. A new vice president is to be selected later. John H. Patterson remains as general manager.

Scrap Specifications Are Changed Little

Washington, Jan. 13.—Few changes were made in the iron and steel scrap specifications prepared by the National Association of Purchasing Agents, after consideration in a meeting at the bureau of standards.

One of the important revisions suggested was the exclusion of alloy steel scrap from No. 1 heavy melting steel in case of agreement between buyer and seller. Another change set up a separate paragraph covering No. 1 selected shearing scrap, which was added to the selected rail scrap specification.

A change was also made in the minimum weights and dimensions of basic open-hearth scrap, including No. 1 and No. 2 busheling, No. 1 selected rail scrap and Nos. 1, 2 and 3 cast iron scrap. These revisions increase the weights and sizes in some cases. A separate class is set up for girder rails, which had been included with T and guard rails.

A change of half of 1 per cent was made in the silicon content for scrap low is phosphorus and sulphur. Alloy steel scrap was also excluded from scrap specifications for use in electric furnaces by agreement between buyers and sellers. Some changes also were made in weights in the latter classification.

Representatives of steel works, railroads, the federal specifications board and purchasing agents attended the conference. The changes will be reported to the national meeting of the National Association of Purchasing Agents at Milwaukee in May.

Occupies New Warehouse for Cold Finished

The Central Steel & Wire Co., Chicago, has moved into its new warehouse and office building at 4545 South Western Boulevard. This is one of the largest warehouses in the world devoted exclusively to the handling of cold finished steel and confined to one floor. It is 467 feet long and 300 feet wide. A siding into the plant is of sufficient length to take care of several cars on this track under cover. The plant is equipped with overhead cranes, hoists and other handling equipment that effect great economies in the receipt, stocking and shipment of material. Special apparatus also has been installed for coating steel to prevent rust.

The company specializes in cold finished steel of all kinds, including screw stock in rounds, flats, hexagons and squares, drill rod, music wire, all kinds of cold-rolled strip steel, and welding wire. The Central Steel & Wire Co. also has a large warehouse in Detroit at 5001 Bellevue avenue. The company warehouses the cold-rolled strip steel made by the Griffin Mfg. Co., Erie, Pa.; screw stock of the Moltrup Steel Products Co., Beaver Falls, Pa.; mesh made by C. O. Jelliff Mfg. Corp., Southport, Conn.; resistance wire made by the Alloy Metal Wire Co., Moore, Pa., and the noncorrosive metals of the American Nickel Corp., Clearfield, Pa.

Buoyancy Shown in Scrap

(*Concluded from Page* 192)

750 tons; San Antonio & Aransas Pass, 1100 tons; Missouri, Kansas & Texas, 1600 tons; Wabash, 25 tons; Pullman Co., 500 tons; Frisco, 700 tons; Kansas City Southern, 250 tons; Missouri Pacific, 3000 tons and Mobile & Ohio, 800 tons.

Dull Demand at Cincinnati

Cincinnati, Jan. 12.—Iron and steel scrap continues dull, with quotations showing a weakening tendency although no reductions have been made. Big consumers display no interest. Producers offer a fair supply of turnings and blast furnace stock, but thus far dealers have shown no inclination to bid for it as the outlet appears closed for the time being. Steel plants are operating around 75 to 80 per cent of capacity, and scrap requirements are being maintained at a fair level. Most of the mills in this district have sufficient scrap on hand or due on contracts to supply their wants for the next month at least. The Norfolk & Western and the Southern railway are closing large lists.

Little New Business Booked

Birmingham, Ala., Jan. 12.—Dealers in iron and steel scrap have much unfilled tonnage on their books. Most of which was taken last month. Quotations are firm. Heavy melting steel is in good demand.

Buyers Flock Into Market

Cleveland, Jan. 13—Consumers of iron and steel scrap have reappeared as buyers of tonnages in considerable quantity, as a result of which prices have strengthened materialiy. Grades in greatest demand are heavy melting steel and turnings, one sale of the latter in the Cleveland district proper in the past week amounting to 10,000 tons. Foundries alone appear reluctant to buy but are expected to be in the market soon. Practically all grades have been marked up, heavy melting steel going to $21 to $21.25; machine shop turnings to $17 to $17.50; cast borings to $17 to $17.25; hydraulic compressed sheets to $18 to $18.50; hand bundled sheets to $15.50 to $16; heavy cast to $16 to $16.50; No. 1 cast to $20 to $20.50.

Concessions in Fluorspar

Pittsburgh, Jan. 13.—While some domestic producers of fluorspar are holding firmly to a $20 asking price, tonnage is available at $18.50, f.o.b. Kentucky or Illinois mines. A few orders lately have been taken at the $18.50 price after $20 had been quoted on the 85 and 5 per cent material. Some foreign fluorspar is coming in at lower prices to hamper the sale of the domestic grade, the foreign being quoted at $17.50, f.o.b. Baltimore. No large inquiries now are out and only one or two smaller ones are up for attention.

Nonferrous Metal Markets

Prices of the Week

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Spot Tin, N. Y. Straits	New York Lead	Lead St. Louis East	St. Louis Zinc	Aluminum 98-99%	Antimony Spot	Nickel Ingot
Jan. 7	15.12½	15.12½	14.50	60.00	10.50	10.25	7.82½	27.00	18.00	31.00
Jan. 8	15.12½	15.25	14.50	59.37½	10.62½	10.25	7.80	27.00	18.00	31.00
Jan. 9	15.12½	15.25	14.50	59.75	10.75	10.50	7.85	27.00	17.50	31.00
Jan. 12	15.12½	15.25	14.50	59.75	10.75	10.50	7.87½	27.00	17.50	31.00
Jan. 13	15.12½	15.25	15.62½	58.75	10.87½	10.62½	7.90	27.00	17.50	31.00

Prices Continue To Rise Here and Abroad—Buying Active

NEW YORK, Jan. 13.—The rise in the sterling exchange rate to above $4.79, the highest in a decade, together with continuous strength in prices, carried London metal prices, figured on a gold basis, to new high levels for the movement. The price of lead, so figured, is the highest on record, while copper is at its high level since the spring of 1923.

Metal markets here and abroad had a severe setback on Jan. 8, due to a toppling of the paper pyramid erected by British speculators in the London market, with corresponding influence on speculative sentiment here. Prices dropped that day from £4 on tin to £1 on copper. Almost immediately, however, recovery took place. Large operators picked up all available bargains, while consumers also jumped at the chance to get concessions. A large business was done in tin on the drop from 60.50c to 59.50c. During this break and subsequent recovery, sterling rates were steadily climbing and when the flurry was over the foreign market was higher than ever, figured in our currency.

Copper—Electrolytic copper stiffened this week. Substantial business was done for first and second quarter at 15.12½c Connecticut, 15.25c Middle West. By Jan. 12, however, selling agencies advanced their second quarter price to 15.25c, Connecticut and there were strong indications that first quarter prices would advance shortly to the same level. A good business has been done for both wire and brass account.

Copper wire—Among recent inquiries for wire account was a lot of 4,000,000 pounds for the Alabama Power Co. for delivery over the last nine months of 1925. The Public Service Co. of Philadelphia has inquired for lead-covered cable involving 1,000,000 pounds of copper and 1,500,000 pounds of lead. Wire prices are unchanged as follows: Bare copper wire, 16.75c to 17c, base, mill; weatherproof and insulated, 18.75c to 19c. Deliveries are about unchanged, four to five weeks on bare wire, six to eight weeks on insulated wire.

Rolled products—Base prices of brass and copper rolled products have not been changed in some weeks, remaining on a 15.37½c ingot copper basis. Business has improved on the stronger copper market. Sheet zinc base price of 11c, mill, has been generally adopted in the trade. Sheet lead prices have advanced in keeping with pig lead to 13.75c for full sheets, 14c for cut sheets, price to plumbers.

Zinc—Export demand for zinc has improved since the publication of the Jan. 1 stastistics, which showed another reduction of 5000 tons in smelter stocks to 21,200 tons, or less than two week's supplies. The domestic market has been quiet, but prices have tended steadily higher, due to sold up condition of smelters and export bidding. Prime western was quoted 7.87½c to 7.90c, East St. Louis, Jan. 12. Brass special commands ⅛ cent premium. High grade is selling at 8.75c, delivered.

Lead—Lead prices have risen steadily. The American Smelting & Refining Co. announced an advance of $5 a ton to 10.50c a pound. New York, Jan. 12. Previously lead was quoted 10.75c, New York, in the open market, 10.50c, East St. Louis, but following the leading interest's announcement the open market again rose to 10.87½c New York, and 10.50c to 10.75c, East St. Louis. The shortage of lead abroad and in the United States is unabated.

Tin—Straits tin sold up to 60.62½c, last week but on the break of Jan. 8 reacted, and did likewise again today. American consumers bought substantially last week, showing more interest than in many weeks. Sentiment in the trade abroad and here continues exceedingly bullish, as the actual statistical position shows improvement.

Aluminum—No change is reported in aluminum, but the market is strong and buying is increasing as automobile companies are getting their first half schedules lined up. Foreign prices remain above parity with the United States and there is no real competition from imported metal.

Antimony—Spot antimony sold as high as 18c, duty paid, the past week, then reacted to 17.50c.

Old metals—Scrap markets are strong though some grades are not so active as new metals.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	19.37½
Copper, hot rolled	22.75
Zinc, ga. 9 to 18 (plates ½c less)	11.00
Lead, full sheets (cut ¼c more)	13.75
Aluminum, bright, 0 to 35 gage	37.50 to 92.00
SEAMLESS TUBES	
High brass	24.00
Copper	25.00
RODS	
High brass, round, ⅜ to 2½-inch	17.37½
Naval brass	19.87½
WIRE	
Copper	16.75 to 17.00
High brass	19.87½

Old Metals

Dealers' buying prices cents per pound

HEAVY RED BRASS	
New York	9.50
Chicago	10.00 to 10.50
Cleveland	10.25
HEAVY YELLOW BRASS	
New York	7.50
Chicago	8.50 to 8.75
Cleveland	8.50
ZINC	
New York	4.50 to 5.00
Chicago, dross	5.00
Cleveland	4.25
HEAVY COPPER AND WIRE	
New York	12.25
Chicago	12.50
Cleveland	13.00
RED BRASS TURNINGS	
New York	8.50
Chicago	9.50 to 9.75
Cleveland	9.75
YELLOW BRASS TUBING	
Cleveland	8.75
NO. 1 BRASS ROD TURNINGS	
New York	8.25
Chicago	8.50
Cleveland	9.25
LIGHT COPPER	
New York	10.25
Chicago	11.50
Cleveland	11.25
LIGHT BRASS	
Chicago	7.50
Clippings, Chicago	10.00 to 10.50
ALUMINUM	
Borings, Cleveland	12.50
Old sheet, Cleveland	18.25
Clippings, Cleveland	22.00

Secondary Metals

Remelt aluminum No. 12	22.50
Brass ingot 85-5-5-5	13.00 to 13.25

Sheet Simplification Plan Is Adopted Widely

Chicago, Jan. 13.—With 34 out of 35 mills, or more than 97 per cent of the sheet manufacturing industry, and considerably more than 80 per cent of the distributors of sheets acquiescing, the department of commerce is expected shortly to issue its formal bulletin announcing that the new simplified sheet steel schedule is operative.

The schedule largely reduces the number of sizes of galvanized, black and blue annealed sheets and roofing sheets the mills are to roll for the jobbing trade. It is the result of many months' work on the part of the sheet steel simplification committee in co-operation with the department of commerce's division of simplified practice. At a conference at Atlantic City, Oct. 14, the schedule was tentatively approved by practically every manufacturer, jobber and consumer attending.

The official bulletin of the department of commerce setting forth the schedule and the interests agreeing to it will be issued in the near future. Next May a board of review, of which Walter C. Carroll, Inland Steel Co., Chicago, is chairman, will consider the effect of the simplification program and take up additions or amendments that actual experience may make desirable.

Car Control Taken From Owners

Commission Makes Assigned Car Order Effective After Long Discussion—Dissenting Opinion Calls Order Severe Blow at Steel and Coke Industry and Aid to Foreign Competitors—Steelmakers Protested

WASHINGTON, Jan. 13.—Operation of the assigned car ruling of the interstate commerce commission, under which privately-owned freight cars must be thrown into a pool with railroad-owned cars in the allocation of equipment to bituminous coal mines, becomes effective March 1 in an order issued by the interstate commerce commission yesterday, and this ruling is to remain in force.

The assigned car ruling, which was issued by the commission June 23, 1923, was reopened by the commission late in that year for further hearing, at which a number of officials of steel, coke, coal and other companies protested against the order being made effective. Pending final disposition of the case, the effective date has been postponed about every 30 days.

In a dissenting opinion, Commissioner Potter assails the majority report as one "giving the by-product coking and steel industry the most serious and alarming setback it ever has had." He states that "the aggressive and destructive attack which the majority report is upon the by-product coking industry, retarding advance in the art of steelmaking and utilization of coal-tar products is timely for the nation's foreign rivals." Commissioners Potter, Hall and Cox dissented, and Commissioners Eastman and Campbell, while concurring in the conclusions made some exceptions.

Companies which introduced evidence against the order and the number of cars owned are as follows:

Bethlehem Steel Corp., 3975 cars; Steel Co. of Canada and affiliated companies, 400; Carnegie Steel Co. and other subsidiaries of the United States Steel Corp., 5200; Pittsburgh Plate Glass Co., 269; Ford Motor Co. and subsidiary company, 800; Youngstown Sheet & Tube Co., 1334; International Harvester Co., and subsidiary, 500; Seaboard By-Product Coke Co., 350; Chicago By-Product Coke Co., 650; Rainey-Wood Coke Co., 400; Donner Union Coke Corp., 500; Berwind-White Coal Mining Co. and subsidiary company, 4078; Westmoreland Coal Co., 2019; Public Service Electric Co., 600. These companies owned about 21,000 of the total 29,296 coal and coke cars privately owned as of Oct. 1, 1923.

Commissioner Potter in his opinion comments as follows:

The majority report gives this industry the most serious and alarming setback it has ever had. It is the greatest benefit that could be conferred upon our foreign competitors in science and industry. The one thing above all others they would have us do is to abolish the use of the private car. I can see no justification or excuse for the damage done. The private car, without adding a penny to the general burden, increases transportation facilities generally available. Its owners provide for themselves additional cars without which they would be entitled to share in the distribution of all other equipment.

I have not attempted to deal exhaustively with the mass of unanswerable testimony placed before us upon further hearing which, seemingly, the majority report utterly ignores. Witnesses Rust, Berwind, Schwab, and other leaders in the industrial arts have made a showing which should have enlightened us. I am unable to comprehend why they failed. They have conclusively demonstrated that the private car is essential to the economical and efficient bunkering of ships and to the carrying on of many of the most important industries in the country. No attempt to answer their testimony was made, and no answer is possible. Some of the most important achievements within the nation's reach depend upon the use of the cars.

End Long Careers in Steel Salesmanship

PITTSBURGH, Jan. 13.—After periods of service with the Jones & Laughlin Steel Corp., remarkable for their length, during which they rose from minor positions to be heads of sales departments and directors, Roland Gerry and Robert Geddis have resigned effective as of Jan. 1, it became known yesterday, in order to devote their time entirely to their own pursuits and as they have stated to their friends, to enjoy the leisure which their long careers of business activity has caused them now to seek. Mr. Gerry has been with the Jones & Laughlin company for a period of 44 years. For many years he was the head of the cold-rolled sales department and recently has served the company as special representative. Mr. Geddis was with the Jones & Laughlin company for 30 years and up to several years ago, was chief of sales of the hot-rolled division. Recently he has been western sales representative with headquarters at San Francisco.

Local steel men say that few men in the industry have a greater acquaintance all over the country than Mr. Gerry and Mr. Geddis.

Four New Mills

To Be Built by McKinney Steel Co. For Billets and Bars

Official information respecting the plans of the McKinney Steel Co. for manufacturing finished material, concerning which there have been fragmentary reports for several weeks, shows that the company has completed all details for the construction of new billet and merchant bar mills. The company has been considering the installation of finishing mills for several years. The new mills will be contained in five new buildings, each to be approximately 1200 feet long and 100 feet wide, closely adjacent to its River furnaces and steelworks, Cleveland.

The company now has a 40-inch blooming mill, 21-inch billet mill and an 18-inch sheet bar and billet mill, handling the output of its 14 open-hearth furnaces. It has decided to duplicate the 21-inch and 18-inch billet mills to produce material for two bar mills. One of the bar mills will be 10-inch and the other 12-inch, rolling bars from ¼-inch to 3½ inches.

The new billet mills will have capacity for rolling 40,000 tons monthly while the new bar mills will have capacity of 70,000 tons monthly, so that about half of the billets required for maximum operations monthly will be supplied by the output from the present mills. The company's ingot capacity was increased to around 1,000,000 tons annually by the rebuilding of eight of its 14 open hearths in the past year.

Contracts for the billet and bar mills and reheating furnaces have been let to the Morgan Construction Co., Worcester, Mass. The furnaces will use producer gas. These are the only contracts thus far awarded. The new mills will be completed sometime in 1926.

The McKinney company has practically completed construction of a 5-story office building at its plant in Cleveland and will remove its general offices soon from their present location in the Perry-Payne building.

Record Coast Building

San Francisco More Active than in Rebuilding of 1907—Large Total Planned for 1925—Prices of Steel Reaching Higher Levels

SAN FRANCISCO, Jan. 10.—With the holidays over, resumption of buying is awaited. During the past week trading was light and bookings involved only small lots. The outlook for first half is especially bright.

A gain of 25 per cent is shown in building permits issued in San Francisco during 1924 over 1923. In addition the total for 1924 exceeded the former high mark of 1907, the reconstruction period, by $1,274,129. Permits issued in 1924 numbered 10,272 with an estimated value of $57,852,973 compared with 6437 permits and a valuation of $56,578,844 in 1907.

Including Dec. 23 building permits in Los Angeles numbered 2940 with a valuation of $9,707,012. The total for the year will be close to $150,000,000. In 1922 the total reached $121,206,787. In 1923 it jumped to $200,133,181.

A survey of building started and work planned for 1925 in Los Angeles and nearby cities, shows a total of about $87,000,000.

Pig Iron and Coke

Recent pig iron sales have involved relatively small lots only. More foundries are using the Utah iron. The Whiting-Mead Commercial Co., Los Angeles, has placed 1000 tons of foundry iron with Balfour, Guthrie & Co., agents for the Columbia Steel Corp. Foreign material still is being sold and one large importer has 2000 tons of English iron and 4000 tons of English coke on the way. The Utah iron, 1.75 to 2.25 per cent silicon, is being quoted at $27.50 to $28.50, delivered Coast Ports cities, while basic is quoted at $27.25 to $28.00 delivered. Dutch iron 2.75 to 3.25 per cent silicon and English iron, 3.00 to 4.00 per cent silicon is held at $27.00 c.i.f. duty paid Coast Ports.

Bars, Plates And Shapes

Most consumers of merchant bars bought rather heavily just before the advance several weeks ago and as a result Coast mill operators report a lull at present.

Bolt and nut representatives in this district find the market strong with good sized orders coming in for first quarter. Large machine bolts are firm at 50-10-10 off, small rivets at 70-10-5, with some interests quoting as high as 70 off, and structural rivets ranging from 2.60c base Pittsburgh to 2.75c. Plate and structural fabricators are placing some fair sized orders. While 2.40c base is reported as ruling in the East on hoops and bands, 2.60c base appears to be the minimum obtainable on the Coast.

Awards of plates this week were confined to small lots but over 2000 tons are up for figures. The Pan American Petroleum Corp. is asking for bids on 18 storage tanks for its Oakland terminal plant, involving about 1500 tons. Bids will be opened on Jan. 8 for a 66-inch penstock for the Lingle power plant, North Platt project. Prices are firm at 2.45c c.i.f. Coast ports as a minimum, while some interests are naming 2.50c and 2.55c.

Plain shapes are strong at 2.45c c.i.f. and some business is going as high as 2.55c. Only one award of importance was reported this week and involved 1525 tons for the Pacific National bank building in Los Angeles, taken by the Union Iron Works. Projects up for figures or pending total a large tonnage estimated to total over 8000 tons.

Demand for cast iron pipe from municipalities is being well maintained. Awards this week exceeded 4900 tons of which the American Cast Iron Pipe Co., took 2519 tons for Los Angeles. Pending tonnages total over 7500 tons.

The Southern Pacific railroad closed this week for 24,000 kegs of track spikes and 4500 kegs of track bolts. No action has yet been taken on the 1540 tons of 70 pound rail for the Cowlitz, Chehalis & Cascade Railroad at Chehalis, Wash.

Warehousemen report sales last month were below November, but better than in December 1923. The movement is well sustained with the exception of plates and bars. The lull in demand for bars is attributed to the fact that consumers covered rather heavily several weeks ago at 2.40c.

Northwest Prices Firm

SEATTLE, Jan. 7.—The expected buying movement has not yet appeared but there is every indication of a strong demand soon. The situation is firm, prices have an upward tendency and the outlook is most promising. Mill representatives believe that the next difficulty will be deliveries for any rush of buying is certain to cause congestion.

The Puget Sound Power & Light Co. has purchased the light and power distribution systems in Winlock, Castle Rock, Vader, Toledo and Napavine and plans extensive improvements. The same company announces it will build at once a high voltage electric substation at Everett, costing $750,000. The municipal light plant of Seattle has adopted plans for extensive improvements covering four years, $7,000,000 in bonds to be issued by the city.

Pig Iron and Coke

While the market has a firm tone buying is quiet as consumers are well covered for six months. Most of them have purchased Utah iron and there is little interest in foreign iron. Local foundrymen are perfecting plans to pool orders for coke and pig iron believing they can buy to better advantage.

Bars, Plate and Shapes

There has been no advance in bars by the local mill, the market still being 2.50c although at San Francisco the price was increased to 2.60c last month. There is expected to be an increase here to conform with California. The local mill is operating at almost full capacity this week. Business consists of small tonnages but the aggregate is considerable. Inquiry is better and the outlook is firm. There is no foreign inquiry.

Plates are firm in harmony with other items. During the week all the mills have advanced prices here to 2.50.

The market on shapes in Oregon and Washington is firm at 2.45c. Fabricating plants are fairly busy and several large contracts are to be bid soon. Bids for the Sellwood bridge were opened at Portland today and taken under advisement. Yarrows, Ltd., Victoria, B. C., has been awarded the contract for two caissons for the government drydock at Skinner's Cove, near Victoria. They will cost about $450,000.

The Pacific Car & Foundry Co. has closed contracts with the Northern Pacific railroad for 500 box cars and with the Bloedel-Donovan lumber mills for 80 logging cars.

Finished Materials

Wholesale prices will not advance until the situation is sufficiently firm to maintain a higher level. Portland dealers are still selling bars and plates at 3.00c, which is 25c under Seattle, the trouble in Oregon not yet being adjusted. Jobbers find a fair business with no item being in particular demand. Bars, plates and boiler tubes are moving.

Seattle is in the market for 56,000 feet of galvanized pipe, ½ to 6-inch, and fittings. The city is also purchasing 200 kegs of nails and spikes.

Old Materials

The market is quiet for steel and No. 1 cast iron scrap. The main buying interest is taking on only small lots of select steel scrap at $8 per gross ton. Cast iron is quoted at $18 but this is said to be the top of the market.

Vulcan Doubling Capacity

Pittsburgh, Jan. 13.—Vulcan Mould & Iron Co., Latrobe, Pa., is extending its main plant, enlarging its power house and installing cranes and drying ovens so that the capacity will be doubled, according to a statement made by E. H. Williams, president. This mold producer operated at full capacity all through 1924 and the expansion is necessary to meet the increased demands which are beginning to materialize for 1925.

Britain Is Selling More Pig Iron

Increasing Number of Blast Furnaces Lighted—Tin Plate Business Good—Steel Market Quiet and Prices Weak—Germany Signs Commercial Agreement with Belgium and Italy

Iron Trade Review Staff Cable

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, Jan. 13.—More blast furnaces have been started to provide for the increasing demand for pig iron. The recovery of the steel market, however, is slow, and prices continue weak. Steady improvement is noted in tin plate business, the British manufacturers making good sales to the Continent, Canada and the Far East. As a further indication of the decline in the Staffordshire iron industry, one more plant has been closed definitely.

Great Britain's production of pig iron in December totaled 580,000 tons, compared with 583,500 tons in November and 600,000 tons in October. The number of furnaces in blast at the end of December was 169 compared with 173 at the close of November. British steel production for December amounted to 550,000 tons, against 672,800 tons in November and 680,000 tons in October.

IRON TRADE REVIEW reports from Paris state that foundry pig iron is being sold for export at 335 francs ($18), and bars for export at £6 ($28.74). Belgian reports say the market in that country is improving, and steel prices are firmer. The information from Berlin this week is that a stronger domestic demand is causing less interest to be shown in exports. Germany has signed a commercial agreement with Belgium and Italy, but negotiations with France have not been concluded.

Belgian Steel Competing in British Market

European Staff Special

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng. Jan. 5.—Business has been light this week, but the tone is cheerful, with pig iron going fully into consumption and prices fairly maintained. A blast furnace is being relighted at Lord Dudley's works in Staffordshire, the first addition to Midland operating plants for a long time. Moderate new business has been placed in the Middlesbrough area where additional furnaces have been lighted, and in Barrow there is every prospect that additions will shortly be made to the 14 now operating. In addition to home demand Barrow is shipping to the Continent and to America, this foreign business hastening reduction of the somewhat large stocks. The Staffordshire furnace is on basic iron, which is firm and in good demand.

Few steelworks have resumed operation this week. The works at Frodingham, Lincolnshire, were the first to commence operations, but a large number are taking a full week's holiday for stocking, and renewal of plant There is still considerable keenness to obtain specifications, structural engineers receiving numerous telephone

Sterling—$4.74

calls from the mills. The £9 ($42.66) figure is readily accepted on an order carrying with it a prompt specification. The nominal price continues at £9 5s ($43.84). Business is still almost wholly for structural work, orders for large lots of rails being still few. No advance in prices is in sight, and customers are disposed to postpone buying on the assumption that present prices will be maintained for some months. Some rail mills, notably in Barrow, are busy on overseas orders and in all parts of the country structural steel makes a fair aggregate. The Belgian markets are decidely weak to judge by the quotations now being received, all of which show some little reduction practically all round. Mild steel bars are selling at £5 19s 6d ($28.32). Antwerp and joists £5 15s 9s ($27.43) equal to £7 ($33.18) delivered here. It is well known that London merchants are stocking heavily of this building material which is being used in connection with erection of big proprietary shops and factories.

In semifinished there is much price disparity. Some firms are selling at £18 10s ($40.29) to £9 ($42.66) while for ordinary mild billets contracts have been taken at £7 ($33.18) delivered. This is mainly due to falling off in tin plate trade, which has compelled leading steelworks to offer their surplus steel on the open market, owing to so many tin plate mills being idle. Belgian billets can be bought at £6 10s ($30.81) delivered.

Steel scrap is difficult to sell and delivery suspensions have been numerous during December. A lot of business has been refused because holders of material are not prepared to accept current prices for forward business. The price has hardened from £3 10s (16.59) to 13 17s 6d ($18.36) delivered in Sheffield but owing to poor demand from South Wales the same price prevails in that area, although a difference of 5s ($1.18) commonly exists between the two districts.

In the Welsh tin plate trade prospects have brightened considerably, important orders having been booked over the first quarter of the year, South America, the Far East and Australia all having reappeared in the market with good bookings. It is hoped the severe slump which has continued for the last two months is coming to an end.

Prices Shaded by Belgian Steelmakers

European Staff Special

BRUSSELS, Jan. 1.—The Belgian iron and steel market is dull not only on account of the season but more so through a general feeling of depression among producers. Much price shading has taken place, especially in the finished steel department. Many transforming mills are anxious to fill their books and are bringing down prices in order to attract orders and those plants which have enjoyed good business of late are obliged to follow suit to keep contract with their customers.

The pig iron market is firm in comparison with the general situation and furnaces are booked until the end of January. No. 3 foundry pig iron 2.5 to 3 per cent silicon remains at 360 Belgian francs per metric ton ($17.90) f.o.b. Antwerp. Basic bessemer pig iron is somewhat easier and is quoted at 340 francs ($16.90). The reorganization of the Belgian coke syndicate has had no influence on pig iron prices since this syndicate has not yet fixed coke prices This organization will start its activities Jan. 1 for five years.

In semifinished steel prices vary according to the occupation of the plants but as a rule order books are well filled and prices are not greatly dif-

Current Iron and Steel Prices of Europe

Prices Converted into Dollars at Rates of Exchange, January 12

	British Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgian and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Despatch—By Cable	£ s d			Francs		Francs	£ s d	
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$19.40	4 1 0*	$17.99	335	$18.04	360	$21.56	4 10 0
Basic	19.16	4 0 0	18.26	340	18.04	360	23.95	5 0 0
Basic-bessemer	21.56	4 10 0†	17.45	325	17.28	345	21.56	4 10 0
Hematite, Phosphorus 0.02-0.05	21.20	4 8 6	22.55	420	.....	...	27.54	5 15 0
SEMIFINISHED STEEL								
Billets	$31.14	6 10 0	$26.04	485	$25.80	515	$25.15	5 5 0
Wire rods	52.69	11 0 0	33.03	615	33.07	660	32.33	6 15 0
FINISHED STEEL								
Standard rails	$40.72	8 10 0	$26.04	485	$30.56	610	$29.94	6 5 0
Merchant bars	1.76c	8 5 0	1.31c	535	1.32c	580	1.28c	5 17 6
Structural shapes	1.71c	8 0 0	1.26c	515	1.23c	540	1.25c	5 15 0
Plates, ship, bridge and tank	1.87c	8 15 0	1.71c	700	1.54c	680	1.47c	6 15 0
Sheets, black, 24 gage	2.67c	12 10 0	3.05c	1,250	2.84c	1,250	2.99c	13 15 0
Sheets, galvanized, 24 gage, corrugated	3.69c	17 5 0	4.26c	1,745	5.11c	2,250	3.80c	17 10 0
Bands and strips	2.35c	11 0 0	1.66c	680	1.79c	790	1.85c	8 10 0
Plain wire, base	2.35c	11 0 0	2.37c	970	2.04c	900	1.85c	8 10 0
Galvanized wire, base	2.99c	14 0 0	3.07c	1,260	2.61c	1,150	2.23c	10 5 0
Wire nails, base	3.10c	14 10 0	2.49c	1,020	2.04c	900	2.72c	12 10 0
Tin plate, base box 108 pounds	$ 5.63	1 3 6	.....	...	.....	...	$ 5.63	1 3 6
Domestic Prices at Works or Furnace—Last Reported								Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$19.40	4 1 0	$16.38	305(2)	$18.04	360	$20.24	88
Basic pig iron	19.16	4 0 0	16.65	310(1)	17.28	345	22.54	98
Furnace coke	4.01	0 16 9	7.63	142	7.52	150	5.52	24
Billets	31.14	6 10 0	23.09	430	25.55	510	27.14	118
Standard rails	1.87c	8 15 0	1.20c	490	1.38c	610	1.42c	136
Merchant bars	1.87c	8 15 0	1.24c	510	1.31c	575	1.30c	125
Shapes	1.82c	8 10 0	1.18c	485	1.27c	560	1.28c	123
Plates, ship, bridge and tank	1.98c	9 5 0	1.72c	705	1.53c	675	1.51c	145
Sheets, black, 24 gage	2.78c	13 0 0	3.05c	1,250	2.89c	1,275	2.66c	255
Sheets, galvanized 24 gage, corrugated	3.69c	17 5 0	4.26c	1,745	5.16c	2,275	5.01c	480
Plain wire	2.46c	11 10 0	2.37c	970	1.93c	850	1.77c	170
Bands and Strips	2.46c	11 10 0	1.68c	690	1.77c	780	1.67c	160

* Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 16s 9d ($4.01) f. o. b. Ferromanganese, £14 10s 0d ($69.46) f. o. b. The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

ferent from those prevailing recently; basic bessemer billets are offered at 510 francs per metric ton ($25.35) with a slightly easier tendency.

Finished steel is dull and prices are being brought down. Producers who were unwilling to accept business at recent high prices in the hope that a further rise would ensue are now keen to fill their books and ready to offer concessions. Merchant bars which were quoted at 580 francs per metric ton ($28.80) at the end of November have now gone back to about 555 francs ($27.50) on the home market. Export prices which reached £6 2s 6d per metric ton ($28.75) at the end of November are now £5 15s ($27) f.o.b. Antwerp. Quotations on other finished products have followed the same trend. Belgian steel continues to find its way in the British markets and basic bessemer billets are offered at £6 7s 6d ($29.70) delivered Birmingham, England. Beams are offered at £7 ($33). However, sales of Belgian steel in Great Britain have suffered a rather severe set-back since Belgian mills have rather neglected this market in order to satisfy demand from German transforming mills which have been building up stocks of Belgian material while these products still enjoy free entry. On the other hand, many British merchants are not inclined to buy on the continent at present prices. It is reported that an order for rails from Japan has found its way to Belgium.

British Export Prices Show Sensible Increase

London, Dec. 20.—Board of Trade returns for November give the average export prices per gross ton and show a sensible increase for beams, which translated into dollars amounts to $11.55 per ton. Tin plate has also increased by $5 per ton, while slight increases are noted as well for foundry pig iron and plates. Ferromanganese has fallen off $2.15 per ton and carbon billets slightly over $10. There was also a slight decrease in the price of galvanized sheets. Prices returned are:

	£	s	d	$
Foundry pig iron	4	17	9	22.90
Ferromanganese	12	12	0	59.10
Carbon billets	13	3	0	61.65
Beams	12	0	7	56.30
Plates	10	16	7	50.80
Galvanized sheets	20	16	0	97.20
Tin plate	24	13	0	116.00

German Syndicate To Sell Semifinished

Berlin, Jan. 2.—The establishment of a German semifinished steel syndicate for selling and fixing prices of semifinished steel products has been constituted for a period of three years from Jan. 1, 1925. The annual quotas of the members of this syndicate are as follows:

	Metric tons
Bochumer Verein	50,000
Deutsch-Luxemburg	30,000
Eisen und Stahlwerk Hoesch	96,000
Fried. Krupp	120,000
Phoenix Co.	24,000
Rheinische Stahlwerke	104,000
August Thyssen-Hutte	100,000
Van der Zypen und Wissen	8,000
Ilseder Hutte (Walzwerk Peine)	11,000
Geisweider Sisenwerke	27,500
Storch & Schoneberg (Bremerhutte)	4,000
Friedrichshutte; Carl Stein	8,000
Maximilianshutte	5,000
	587,500

It is agreed that the Bochumer Verein and the Deutsch-Luxemburg may combine their quotas. Special provisions are made for a number of firms and the quota of the Eisen und Stahlwerk Hoesch which at present is fixed at 96,000 tons will be 60,000 tons dating from July 1, 1925, and 48,000 tons dating from Oct. 1, 1925. The Rheinische Stahlwerk may also reduce their quota to 24,000 tons according to their needs. It is also agreed that the Geisweider Eisenwerke, the Bremerhutte and the Friedrichshutte will receive all the monies collected from sales of their respective products. Furthermore, the Klockner Werke, the Rombacher Huttenwerke, the Gelsenwirchen and the Linke-Hoffmann have agreed not to sell any of their semifinished products on the open market during the life of the syndicate.

Building construction for which permits were issued in Chicago in 1924 ran up a total second only to 1923. The 1924 total was $296,893,385, compared with $329,904,312 in 1923 and $227,742,010 in 1922. December permits aggregated $22,115,630, against $21,740,450 in December, 123, and $29,264,990 in November, 1924.

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Get Rid of the Ships

FEW businesses could keep on losing more than $3,000,000 monthly from their operations and stay out of liquidation. That is what the government now is doing, according to the report of the advisory committee to President Coolidge, through its ill-advised undertaking of running a merchant marine which has descended to it as part of the salvage of a great national emergency. But this does not tell half the story. Many millions more of capital losses must be added for the depreciation, major repairs, replacements, etc., arising from the natural wear and tear of a great fleet, many ships of which simply are wasting away lying in idleness at their anchorages.

Then beyond this is the economic loss of subsidized government ships competing against private-owned vessels to the unfair disadvantage of the latter and of incalculable damage to the whole American shipping industry, because the latter is left on a false basis. In addition are the losses of inefficiency of administration, for no matter how well intentioned, the management of government-owned ships is honeycombed with politics.

The government has no right or jurisdiction to continue in the shipping business. The present situation is an impossible one both for the taxpayers, for the government itself and for the welfare of the American merchant marine. The ships should be disposed of without further delay and the quicker the better. Probably the sense of practical thrift of the American people scarcely would bring them to favor the sinking of the ships, however effective that would be, as the quickest way out of the present difficulty. Selling or scrapping the nondescript fleet would be more acceptable. It is to be hoped that the recommendation of the advisory committee to the President favoring a liberal policy of selling the ships for whatever they will bring regardless of bookkeeping losses, will be put through and that with vigor and dispatch.

Building Slack Being Taken Up

BUILDING construction now rapidly is replacing what was lost in normal growth during the war years. So far the large building years since the war, especially those of 1923 and 1924 have been created out principally of the shortage in housing requirements. Industrial and commercial construction has lagged behind.

The turn now appears to have come. Structural steel is cheaper than in several years, money rates are easy and the prospect of good business ahead for a long period is stimulating to new undertakings. As a result investors no longer hesitate. New projects are being put through with speed and in large volume.

Late in November the volume of structural projects that had reached the stage of actual contracts touched nearly 100,000 tons in a single week, a record surpassing all previous figures. Since that time the average of weekly lettings has left to an unusually high figure. Residence building involves comparatively little steel. Commercial and industrial structures largely are responsible for the present expansion of steel awards.

San Francisco in 1924 showed nearly double the number of building permits issued in 1907 when that city was rebuilding from the effects of the earthquake. Chicago has a $300,000,000 building program in sight for 1925. These are straws showing the tendency toward larger building programs and the rounding out of present deficiencies.

Contracts now being let are for spring building in most instances and every sign points to a continuance of the large volume as the season matures. With railroad buying also active, two of the major outlets for steel at present are forming a strong foundation of demand which give assurance of continued mill activity at a high rate.

Keep Posted on Current Changes

NEW developments are sweeping over industry's horizon so rapidly that manufacturers find it difficult to keep informed of their significance. Reports of new processes or new discoveries issued today often foreshadow drastic changes in tomorrow's routine of doing business.

Of the hundreds of examples of this condition that could be cited, those pertaining to welding are most striking and at the same time are typical.

The gas and electric methods of joining metals seem to be unusually prompt in responding to changed requirements. For instance, shortly after tetra-ethyl-lead was added to gasoline to produce the now well-known "ethyl" gas, one manufacturer of electric welding equipment experienced a decided increase in the demand for his apparatus from tank makers. Investigation showed that the entry of "ethyl" gas necessitated changes in the methods of distributing gasoline at filling stations. At first attempts were made to "dope" the ordinary gasoline in the filling station storage tanks. This practice soon proved unsatisfactory, and it then became necessary to install extra tanks so that the two grades of gasoline could be stored separately. This meant the addition of from one to four or five additional tanks at each filling station handling the new gas and, of course, greatly expanded the demand for tanks. The builders, faced with this condition, bought more welders.

Welding also is being affected by a gradual change that is taking place in the distribution of steam for district heating. Not many years ago steam was supplied from central stations to industrial and domestic users at comparatively low pressures and temperatures, ordinary pipe lines being satisfactory for this purpose. Today the tendency is to transmit steam in a superheated state and at a high pressure. Velocities of tens of thousands of feet per minute have been developed in underground steam-distributing lines. Welding is proving to be well adapted to the work involved in connecting these high pressure lines. Not only is it convenient, but it fulfills the need of strength.

These two illustrations, taken from many that could be related, show how important it is for manufacturers of metalworking products and equipment to keep in touch with current economic and scientific developments. The executive who is first to see the connection between a new method or a new material and the business he is conducting is likely to gain an advantage over his slower thinking competitors.

Blast Furnace Index Advances

SINCE its introduction a few months ago the Blast Furnace Index has won much recognition as a trustworthy measure of the position both of general business and of security values. Just now the index is approaching an especially interesting stage, with the result that it is coming in for special attention from the bankers and investors throughout the country. The reason is simple. The curve is giving a broad hint that tops of the security markets have almost been reached.

The Index, as devised by Col. L. P. Ayres, vice president of the Cleveland Trust Co. and one of the country's leading economists, is based upon IRON TRADE REVIEW's record of blast furnace activity. It is shown in diagram every month in the *Business Trend*. The index traces the operations of all furnaces over many years. It has been found that when 60 per cent of the total number of furnaces is active, normal conditions prevail in the iron and steel industry and in general business.

The fluctuations of the curve of active furnaces have been found to possess significance for the security markets. Generally, in the past when the blast furnace index crossed the theoretical normal of 60 per cent going up prices of both stocks and bonds were at their highest levels for that particular movement. In the main the index has offered a reliable guide. In recent months it has operated with striking accuracy.

The present number of furnaces in the country is 411. In July only 145 of them were in blast. That was 35.5 per cent of the total or a little more than 40 per cent below the theoretical normal line. The recovery has been rapid since last summer and at the close of the year 55.7 per cent of furnaces were active, bringing the index to only 8 per cent below the normal line. With activities continuing to expand in the iron and steel trade, additional furnaces are being lighted and the index is expected to cross the normal line shortly.

Lake Transportation Is Vital

THE advantages of Great Lakes transportation have received more publicity in the last week than in any similar period in the past. An important point has been won by the government, the bordering states and shipping interests, allied, in their litigation with the city of Chicago over the withdrawal of 6 inches of lake water for the Chicago drainage canal.

The United States Supreme Court has decided Chicago must reduce the amount by less than half, in accordance with the permit issued by the secretary of war during the Taft administration. As far as the courts are concerned for the present this ends a controversy that has been in progress for a score of years. Chicago has no alternative than to obtain consent for withdrawing more water, this from the government that has already enjoined it, or by legislation of congress.

Chicago is given 60 days in which to reduce the amount of water it diverts from the lakes; it must limit itself to 4167 cubic feet per second instead of 10,000. This can be accomplished simply by raising the gates in the dam at Lockport that controls the inflow of water. But the question of whether Chicago will be shut off from the larger supply of water, that it uses for power is likely to be in dispute quite a while longer.

In the meantime probably the most important feature of the subject is the emphasis that it places on Great Lakes transportation, and its value to the public. It is true that by reducing the outflow of lake water at Chicago to the amount originally permitted, about $2,000,000 will be added to the annual revenue of the lake shipping of iron ore, coal and other commodities, but that has been secondary to the government's suit.

Because the lakes have been freely navigable the shippers have been able to perform a ton-mile service exceeding 25 per cent of the ton-mile service by all the railroads of the United States, and about one-half that of all the railroads east of the Mississippi and north of the Ohio river in the region of the Great Lakes. Freight traffic on the lakes above Niagara Falls exceeds 100,000,000 tons annually. The cost of carrying a ton of iron ore 1000 miles on the lakes is less than the railroad freight for 100 miles. Significant facts of this description are contained in the article on page 230 of this issue. They show why national interests should not be subordinated to those of one city.

Yesterdays in Industry

Trade and Technical News from IRON TRADE REVIEW 10, 20 and 30 Years Ago

January 10, 1895

SOME of the commonest devices now used about a steel works have been of recent origin. The hot metal mixer, used in all open-hearth plants of any size, was invented and first used by Captain William A. Jones, who at this date was connected with the Edgar Thomson Steel Works, Pittsburgh.

* * *

There were 136 stands of black plate rolls in the United States with a capacity of 225,000 net tons per year, which was more than sufficient to supply the tin plate needs of the country. Now there are more than 560 such mills with an annual capacity of 2,230,000 tons, a tenfold growth in output.

* * *

Puddlers, refusing to work at reduced wages, fell into such poverty that at Youngstown a public meeting was held at which iron mill owners and city officials conferred to find means for aiding the men and their families. Steel was supplanting iron and scrap was being used for muck bar, resulting in lessened employment. The men were urged to forget unionism and to work at other trades or take reduced wages, as employers could not pay former wages.

* * *

N. E Whitaker, Wheeling, W. Va., president of the Whitaker Iron Co., became a candidate for the United States senate against Stephen B. Elkins.

* * *

Henry Phipps deserted Pittsburgh as a residence and joined the New York circle of steelmasters.

* * *

The first steel sailing vessel built on the Great Lakes was launched Jan. 4, at the yards of the Chicago Shipbuilding Co., on the Calumet river, Chicago. It was the MALTA of the Minnesota Steamship Co. and was to be used as a tow barge. It had three masts, was 320 feet long, 40 feet beam, 24 feet deep and carried 3000 tons.

* * *

January 12, 1905

ROLLED sheet steel piling was being experimented with by the Carnegie Steel Co. and the Jones & Laughlin Steel Co. It was described as cheaper than wood piling. It was to have an interlocking device on each edge and this presentcd difficulties in rolling, but the writer naively suggested, "but as all such difficulties have been overcome in the past, it is certain that this piling will soon be offered to the trade." That is the spirit that has made the steel industry great.

* * *

Andrew Carnegie might have been a baronet and a peer of England. On his visit to London, in the summer of 1905 he was offered both these honors but declined them.

* * *

Prophets are often without honor in later years, to paraphrase the old statement. An editorial in this issue calls attention to the alleged fact that "for several years it has been obvious that a point could be reached some time in the rapid expansion of the basic open-hearth steel industry when the current outcome of scrap would be insufficient." Reasons then were given to show why the supply of scrap could not keep up with demand.

* * *

William Whigham, vice president in charge of operations for the Carnegie Steel Co. at the Homestead works, whose death was chronicled a week ago, was superintendent of the Howard Axle Works of the same company in 1905 and had just been transferred to the city office of the company.

* * *

Silas J. Llewellyn, now president of the Interstate Iron & Steel Co., Chicago, then president of the Chicago Malleable Castings Co., sailed for Naples for a stay of two months in Europe.

* * *

Leonard C. Hanna, brother of M. A. Hanna, retired from the firm of M. A. Hanna & Co., Cleveland, as senior member, after 30 years of service.

* * *

The Lake Superior Corp., Sault Ste. Marie, Ont., was booked for its rail output until the end of September and expected during January to take sufficient business to keep its mill busy all year.

* * *

January 14. 1915

DECISION by the United States Supreme Court in the case against the Danbury hatters affirming the findings of lower courts that individual members of a labor union are liable for triple damages in cases of boycott, established a new milestone in labor matters. The then new Clayton law was examined closely to determine if it changed the status in respect to any similar case and appeared to have no such effect.

* * *

Orders for machine tools placed in Germany, which could not be filled, were being offered to builders in the United States.

* * *

Steelmakers in Wales were seeking steel scrap supplies in the United States but high freight rates prevented its transportation.

* * *

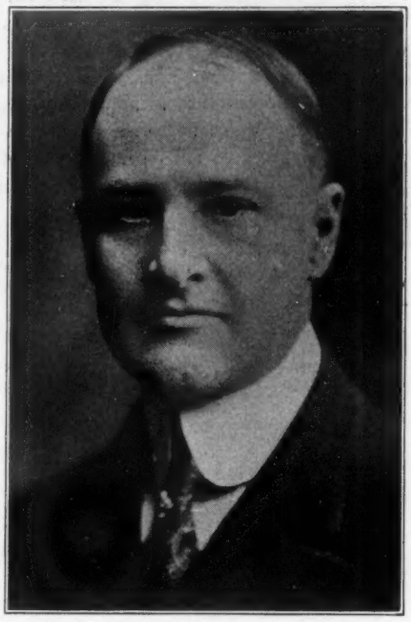
Pig iron production in 1914 fell 7,720,000 tons short of 1913.

Some Prices from the Past

	Jan. 10, 1895	Jan. 12, 1905	Jan. 14, 1915
Basic, Pittsburgh	....	16.85	13.45
Bessemer, Pittsburgh	10.65	16.95	14.70
No. 2 foundry, Pittsburgh	10.25	17.35	13.70
No. 2 foundry, Chicago	9.75	17.50	13.00
Lake Superior, Chicago	13.00	18.50	15.75
No. 2 southern, Birmingham	....	13.75	9.50
Bars, steel, Pittsburgh	....	1.40c	1.10c
Bars, steel, Chicago	1.25c	1.565c	1.29c
Plates, Pittsburgh	1.15c	1.40c	1.10c
Shapes, Pittsburgh	1.25c	1.50c	1.10c
Heavy melting steel, Pittsburgh	....	17.00	11.50
Heavy melting steel, Chicago	7.25	15.00	9.00

Carnegie Elects Two Vice Presidents

AMBROSE NEVIN DIEHL, who had been general superintendent of the Duquesne works, Carnegie Steel Co. at Duquesne, Pa., was elected vice president in charge of operations in the Pittsburgh district to succeed the late William Whigham, at a meeting of the board of directors held at Pittsburgh, Jan. 12. I. Lamont Hughes was chosen a vice president in charge of operations in the Youngstown, Ohio, and valley district, which includes Youngstown, Mingo Junction and Bellaire, O.,



AMBROSE NEVIN DIEHL

and New Castle and Farrell, Pa. Mr. Hughes has been general superintendent of the works at Youngstown, O. At the Duquesne works, succeeding Mr. Diehl, Samuel G. Worton, who has been the assistant general superintendent was made general superintendent, and David C. Borroughs, formerly superintendent of the electrical department, became assistant general superintendent.

Ambrose N. Diehl was born in York county, Pennsylvania, Oct. 20, 1876. Mr. Diehl entered the public schools and later prepared for college at the York Collegiate institute, York, Pa., graduating from there in 1894. He entered the Pennsylvania State college and received a degree of bachelor of science in 1898. He was president of the Athletic association and received his letters in football and track. He is a member of Sigma Chi fraternity and charter member of the Thespians. After graduation, one year was spent in experimental agriculture work in the Pennsylvania experimental station, and in 1899 he took a position in the laboratories of the Carnegie Steel Co. at its Duquesne works.

After seven months he was transferred to the blast furnace department and six months later was made assistant blast furnace superintendent. In October, 1901 he was given charge of the department and remained in this capacity until 1915 when he served as assistant general superintendent of the Duquesne steel works and blast furnaces. After one year and a half in these positions, he served as assistant operating vice president in the general offices in Pittsburgh during the high pressure of the war period. In 1918 he took general charge of the Duquesne works as general superintendent.

Mr. Diehl has presented numerous technical papers before the American Iron and Steel institute; the American Institute of Mining and Metallurgical Engineers, and the Engineers' Society of Western Pennsylvania serving as a director of both the latter organizations. In addition he is a member of the American Society of Mechanical Engineers, and various clubs and social organizations. He is president of the Duquesne Trust Co., president of the Duquesne library, and chairman of the Duquesne branch of the Red Cross. He is a trustee of the Pennsylvania State college, and also chairman of the athletic alumni committee which controls the athletics and physical education of that institution.

I. Lamont Hughes has been with the Carnegie Steel Co. or its allied interests for more than a quarter of a century. He was born in Mercer, Pa., on Jan. 25, 1878, was educated in the public schools of Mercer and New Castle, Pa., and later was graduated from the high school of North Braddock, Pa. Upon his graduation he took up work in the steel industry, with his first job in the engineering department of the Edgar Thompson works of the Carnegie Steel Co. in September, 1897. He remained there until June, 1901, when he took charge of engineering for the Union Steel Co., Denora, Pa., and in January 1905 went to Youngstown as master mechanic of the bar mills of the Youngstown district of the Carnegie Steel Co., the district at the time including mills at Warren and Girard, O., Greenville, Pa., and the Upper and Lower Union mills at Youngstown.

Mr. Hughes was made assistant general superintendent of the bar mills of the Youngstown district in March 1906 and five years later was made general superintendent. He continued in this capacity until Jan. 1, 1916 when he was made assistant general superintendent of the entire Youngstown district of the Carnegie Steel Co., the operations of which at that time included the construction of the modern steel bar mills and townsite at McDonald, O.

In June 1916, Mr. Hughes went to Ojibway, Ont., as general superintend-

I. LAMONT HUGHES

ent in charge of the Canadian Steel Co.'s project at that place. In June 1918 he was transferred to be general superintendent to the operations being carried on at Neville Island by the United States Steel Corp. for the government in the construction of a projected ordnance plant. At the ending of the war, Mr. Hughes was made president of the Lorain Steel Co., Johnstown, Pa., taking up these duties May 1, 1919. On Jan. 1, 1920, he became general superintendent of all the operations of the Carnegie Steel Co. in the Youngstown district.

The Electrical Manufacturers' council, 30 East Forty-second street, New York, will hold its annual meeting on Jan. 16. The chairman is S. L. Nicholson, Westinghouse Electric & Mfg. Co. 165 Broadway, and Frederic Nicholas 30 East Forty-second street, is secretary.

Current Statistics of Industry

Output of Malleable Castings Decreases

Washington, Jan. 13.—Production of malleable castings in November totaled 47,981 tons, as compared with 50,066 tons in October, according to reports to the department of commerce. Bookings dropped from 54,589 to 48,866 tons and shipments from 44,978 to 44,063 tons. Operations in November were at 42.5 per cent of capacity as compared with 43.8 in October. Following is a summary of operations for the first 11 months of 1924:

	Total tons produced	Per cent of capacity	Total tons booked	Monthly capacity
May	64,726	71	52,898	91,174
June	65,168	67.7	42,067	96,240
July	57,881	58.9	41,723	98,241
August	68,069	66.0	39,830	103,068
September	60,930	59.9	38,636	101,750
October	62,238	59.9	48,621	103,837
November	52,727	49.1	37,231	107,350
December	49,724	46.5	45,012	106,825
1924				
January	64,379	58.6	73,964	109,798
February	66,637	62.0	62,652	107,551
March	72,807	66.5	60,326	109,414
April	58,634*	53.7	45,955	109,131
May	49,814*	45.6	29,741	109,173
June	33,876*	31.2	22,880	108,520
July	31,159**	28.4	30,200	109,855
August	36,727**	32.6	34,627	112,496
September	41,507**	36.9	48,729	112,349
October	50,066***	43.8	54,589	114,264
November	47,987**	42.5	48,866	113,011

*Includes 3 plants reported idle.
**Includes 4 plants reported idle.
***Includes 5 plants reported idle.

November Records Gain in Steel Castings

Washington, Jan. 13.—Bookings of steel castings in November were the highest at 74,220 tons since March, when 100,514 tons was sold. The November increase was directly due to the gain in railway specialties, this classification jumping from 31,130 tons in October to 41,343 tons in November Bookings in November were at 73.6 per cent of capacity compared with 66.2 per cent in October.

The following table shows the bookings of commercial steel castings for the first 11 months of 1924, by 70 identical companies.

	Total net tons	Per cent capacity	Railway specialties net tons	Miscellaneous net tons
1923 totals	894,780	...	386,939	507,841
Mo. average	74,565	74.05	32,245	42,320
1924				
January	51,406	51.0	19,572	31,834
February	73,138	72.6	35,474	37,664
March	100,514	99.8	59,778	40,736
April	68,119	67.6	33,151	34,968
May	56,801	56.4	28,064	28,737
June	48,718	48.4	26,170	22,548
July	38,191	37.9	16,244	21,947
August	36,363	36.1	14,532	21,831
September	62,509	62.1	23,567	32,942
October	66,697	66.2	31,130	35,567
November	74,220	73.7	41,343	32,877

Two companies with a capacity of 785 tons per month on miscellaneous castings out of business in July, 1923.

Unfilled Tonnage Makes Unusual Gain

In one of the largest advances in many months, unfilled bookings of the United States Steel Corp., as of Dec. 31, went to 4,816,676 tons. This is an increase of 784,707 tons, or 19.1 per cent over the preceding month. The unfilled orders at the close of December were the largest since February, 1924, when the total was 4,912,901 tons. Further comparisons follows:

Date	Total	Change, tonnage	Change, per cent	
Dec. 31, 1924	4,816,676	784,707	+19.1	+
Nov. 30, 1924	4,031,969	506,699	+14.3	+
Oct. 31, 1924	3,525,270	51,490	+ 1.48	+
Sept. 30, 1924	3,473,780	184,203	+ 5.59	+
Aug. 31, 1924	3,289,577	102,505	+ 3.02	+
July 31, 1924	3,187,072	75,433	— 2.3	—
June 30, 1924	3,262,505	365,584	—11.1	—
May 31, 1924	3,628,089	580,358	—13.79	—
April 30, 1924	4,208,447	574,360	—12.008	—
Mar. 31, 1924	4,782,807	130,094	— 2.6	—
Feb. 29, 1924	4,912,901	114,472	+ 2.3	+
Jan. 31, 1924	4,798,429	350,183	+ 7.8	+
Dec. 31, 1923	4,445,339	76,755	+ 1.7	+
Nov. 30, 1923	4,368,584	304,241	— 6.5	—
Oct. 31, 1923	4,672,825	362,925	— 7.2	—
Sept. 30, 1923	5,035,750	378,913	— 6.99	—

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Coal Index	Jan. 8
Corn and Wheat Prices	Jan. 8
Employment Index	Jan. 8
Foundry Pig Iron	Jan. 8
Wholesale and Retail Prices	Jan. 8
Automotive Production	Dec. 25
Building Construction	Dec. 25
Foreign Trade	Dec. 25
Gold Movements	Dec. 25
Monthly Coke Output	Dec. 25
Structural Awards	Dec. 25
Bradstreet's Index	Dec. 18
Security Prices	Dec. 18
Steel Orders	Dec. 18
Commercial Failures	Dec. 11
Freight Car Movement	Dec. 11
Index of Basic Production	Dec. 11
Farmer Purchasing Power	Dec. 4
Independent Sheet Situation	Nov. 27
Steel Price Index	Nov. 20
Iron and Steel Price Parity	Nov. 13
Iron and Steel Foreign Trade	Nov. 6
Wage Situation	Oct. 30
European Conditions	Oct. 23
Bonds and Interest	Oct. 9
Building Cost Index	Oct. 2
Bank Clearings	Aug. 7
Steel Castings Bookings	Aug. 7
Steel Wages and Prices	July 24
Electric Power Production	July 31
Mail Order Sales	May 8

Beehive Coke Opens 1925 with Sharp Gain

Washington, Jan. 13.—The opening of the New Year was marked by a sharp increase in the rate of production of beehive coke, says the Geological Survey. The total output in the week ended Jan. 3 is now estimated at 251,000 net tons, an increase of 62,000 tons over the revised figure for the preceding holiday week, and of 32,000 tons over that for the week Dec. 20. Compared with the corresponding week a year ago there was an increase of 15,000 tons. Preliminary estimates place the total output of beehive coke in 1924 at approximately 9,670,000 net tons, a decrease when compared with 1923, of 9,710,000 tons, or 50 per cent. The record for the week in net tons follows:

	Jan. 3, 1925a	Jan. 5, 1924	Dec. 27, 1924b
Pennsylvania & Ohio	200,000	192,000	149,000
West Virginia	12,000	14,000	8,000
Alabama, Kentucky, Tennessee and Georgia	24,000	13,000	16,000
Virginia	7,000	7,000	7,000
Colorado and New Mexico	3,000	6,000	5,000
Washington and Utah	5,000	4,000	4,000
United States total	251,000	236,000	189,000
Daily average	42,000	39,000	38,000

(a) Subject to revision. (b) Revised from last report.

Buys Machine Rights from Cleveland Builder

The Kent Machine Co., Kent, O., has purchased from the National Acme Co., Cleveland, all drawings, patterns and tools for manufacturing and also all rights to manufacture under patents the complete line of auxiliary machinery which has been manufactured by the latter company for the past few years.

This machinery was developed by the National Acme Co. for secondary operations in their own screw products plants and the demand for these machines on the part of users of their automatic screw machines caused them to place these on the market. Since that time a ready field has been found for each one of the machines, not only in screw products plants but also in other machine shops.

The machines involved in the transaction include bar pointing machines, automatic stud threaders in two sizes, small tool grinders, single spindle drillers, six-spindle semi-automatic drillers, semi-automatic screw slotters in two sizes and two-spindle threaders.

The Business Trend

January 15, 1925

BY JOHN W. HILL, FINANCIAL EDITOR

THE iron and steel industry is setting the pace for business in 1925. The quick recovery of demand after the holidays, the firmer prices, and the better operations all mark out a definite trend which is upward.

As yet, however, neither iron and steel nor general trade, has developed runaway tendencies. Recovery has been steady and unmistakable since last summer, but there has been a solid prop of genuine demand for every advance in the level of activity.

From present evidence the early part of 1925 is to be marked by large needs for goods, good purchasing power, strong price levels, and increasing confidence on the part of buyers.

The remarkable change in the attitude of buyers is revealed by the record of unfilled orders of the United States Steel Corp. In July these orders dropped to the lowest point, relative to mill capacity, in the entire existence of the corporation.

Orders Increase

In December there was an increase in orders of 784,707 tons. This was the largest gain for any month since January, 1920. It has been exceeded in only four peace-time months and three war months in the corporation's history. The total of bookings is now at the highest level since last February. All of this means that stocks of steel ran low in 1924, that consumption is rising, and that buyers are confident of the outlook.

The financial markets have presented many interesting highlights since the first of the year. Stocks have continued active. Stock exchange call money rates have dropped to the low 1924 levels, and sterling has soared to within 1.5 per cent of par. The gold standard for Great Britain is near at hand.

Gold Current Changes

Not only are we loaning credit to European industries, but we are sending gold abroad in increasing quantities. It now seems clear that the long predicted reversal in the flow of gold has appeared. Since Dec. 1 the outward movement has been $68,000,000.

This is one of the largest movements ever known for a similar period of time. Even in 1919 there was a greater outflow in but two months. At this rate the country will soon be relieved of its excess stocks of gold. That is the end desired by financiers as a preventive against inflation.

The railroads are wisely preparing for what promises to be one of the heaviest traffic periods for all time this year. They are renewing pledges of mutual co-operation with shippers and they are buying new equipment. In 1924 the roads handled 48,527,225 carloads of freight, the largest total on record except for 1923.

The Barometer of Business

Weekly Comparison

	Last week	Week before	One month ago	One year ago	1915
Business failures ..	552	445	358	543	...
Cash Ratio Fed. Res. System %..	74.6	73.0	75.2	78.4	...
Loan rate, 4-6 mos., N. Y. %	3½-3¾	3½-3¾	3½-3¾	5	5¼
Aver. price 25 industrial shares..	$135.43	$138.01	$127.11	$112.14	$58.19
Aver. price 25 railroad shares ..	$80.88	$79.93	$78.83	$60.35	$82.97
Ave. price 40 bonds	$82.57	$82.10	$82.16	$77.15	$93.00
Car loadings week ended Dec. 27..	646,880	889,776	878,631	615,419	*602,368
Commercial loans 743 member banks (000 omitted)	$8,205,684	$8,185,530	$8,194,076	$7,797,926	.....

*1920

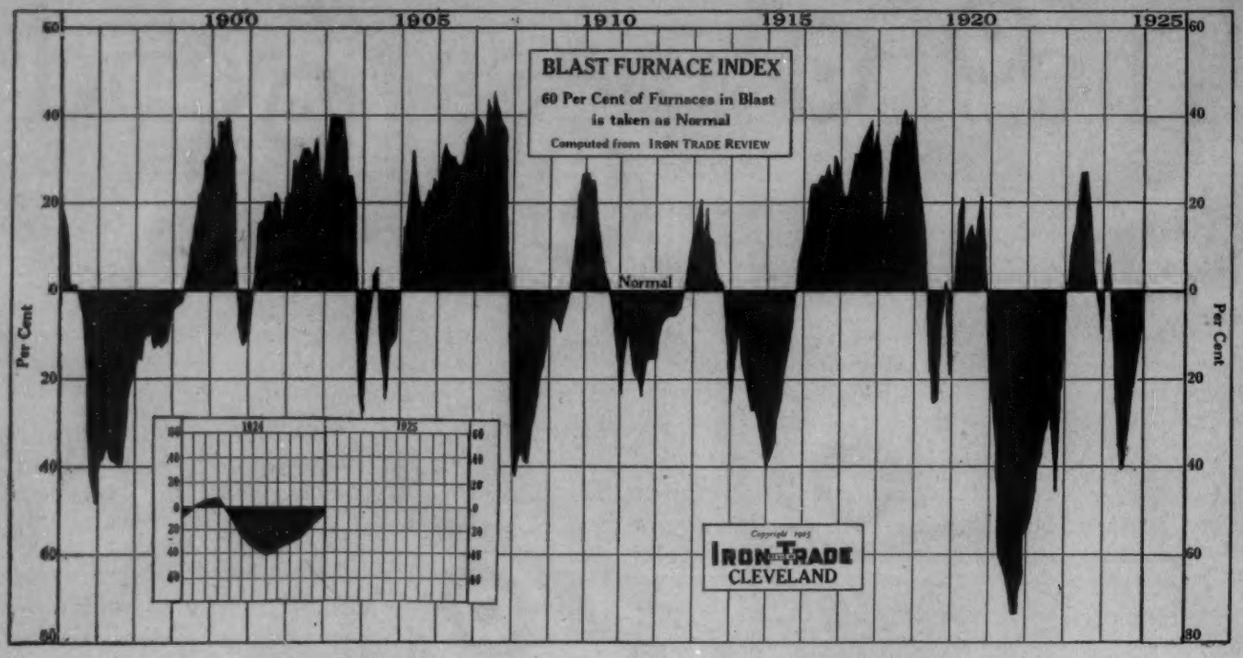
Foreign Exchange (Demand)

	Normal	Last week (close)	Week before	One month ago	One year ago
Sterling	$4.86	$4.78	$4.75	$4.69	$4.29
Francs	19.3c	5.35c	5.41c	5.35c	4.93c
Lira	19.8c	4.19c	4.23c	4.30c	4.30c
Marks	23.8c	23.8c	23.8c	23.8c	....

Monthly Comparison

	Dec.	One Month before	One Year ago	1913 Mo. average
Dodge Building awards in 27 states (sq. ft.)	*49,012,200	49,489,800	52,599,500	31,250,000
Business failures:				
Number	2,040	1,653	1,841	1,336
Liabilities ...	$45,279,281	$31,123,281	$51,614,730	$22,732,000
Exports	*$494,000,000	$527,000,000	$401,483,872	$233,195,000
Excess of gold imports	*$13,160,407	$15,576,274	$39,010,642	†$630,716
Bureau of labor price index .	*152.7	151.9	152.1	100
Bradstreet's price index	150	146.4	143.6	100
Economist's British price index ..	178.6	178.2	168	100
Nat'l Industrial Con. board living cost index	*165.2	165	165.3	‡100
New incorporations	$734,854,000	$574,096,000	$955,632,000	$49,301,000
Railroad net earnings	*$93,177,560	$127,105,000	$86,720,000	$59,301,000

†Excess of gold exports. ‡July, 1914. *November.

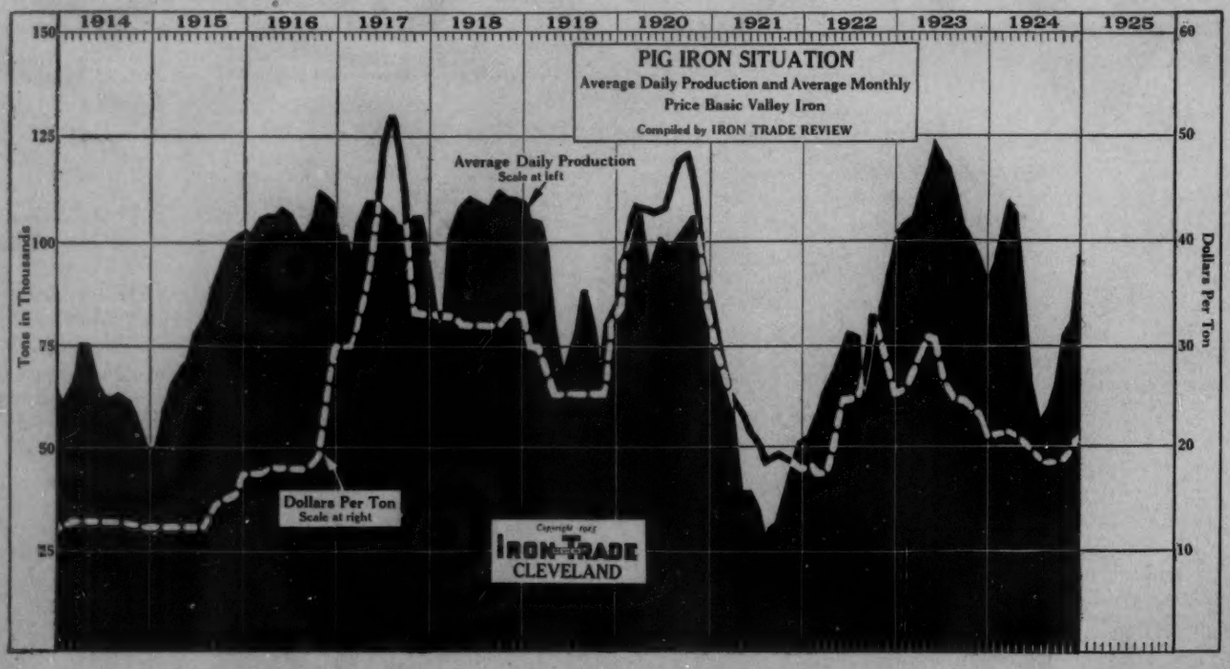


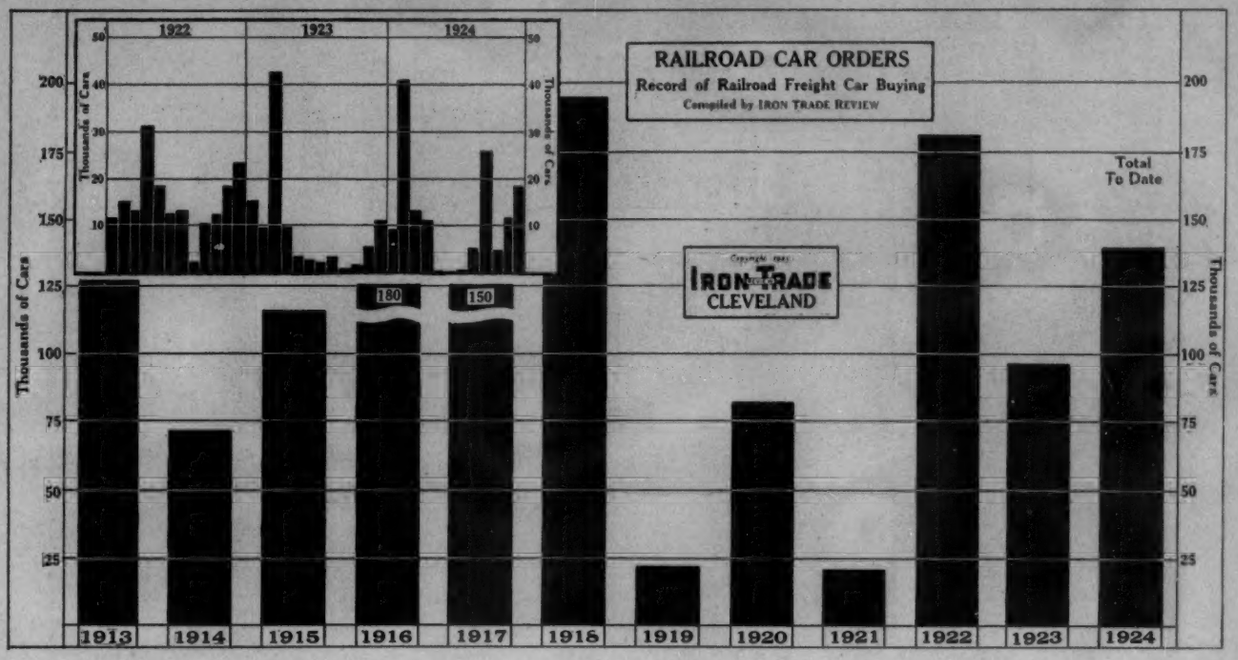
Blast Furnace Index

THE number of blast furnaces active at the close of 1924 was 229. The increase over the number at the close of November was 25. Since the bottom level of the year in July 87 furnaces have been blown in. Of the total number of 411 furnaces in the country 55.7 per cent are now in blast. The theoretical normal is 60 per cent. The blast furnace index is now only 8 per cent below normal compared with 17 per cent below normal one month ago and over 40 per cent below normal in July.

Pig Iron Situation

THE pendulum of pig iron production in December swung forward with the widest advance in more than two years. The daily average output was 95,518 tons. This was the highest figure since last April. It represented a gain of 11,686 tons over the daily average of November. Not since October 1922 has there been so large an increase. December was the first month of 1924 to pass a corresponding month of 1923 in iron output. The year's total of 31,081,250 tons compared with 40,245,850 tons in 1923.



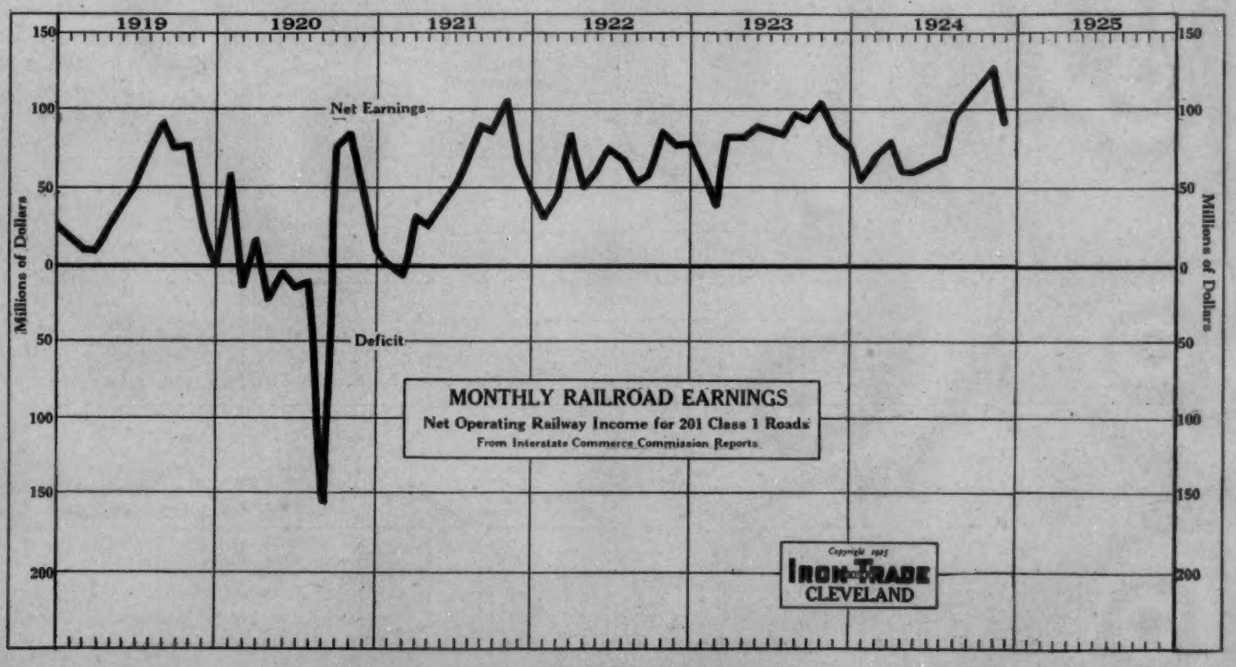


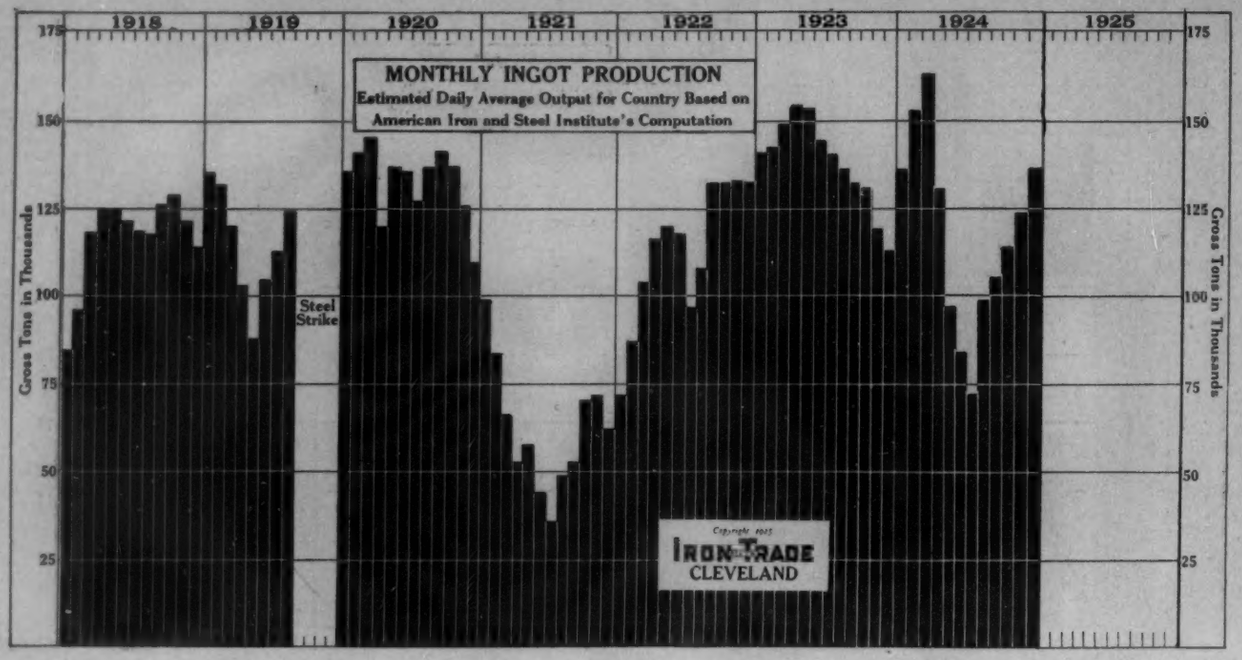
Car Orders

MANY records were broken in traffic in the closing months of 1924. Railroad executives expect that 1925 will bring an even more severe test upon transportation facilities. They are preparing to meet such a test. More than $1,100,000,000 has been authorized to be spent for improvements. In December the roads ordered 18,475 freight cars against 12,720 in November and 11,600 in December 1923. The year's total was 144,425 cars against 103,487 in 1923, a gain of nearly 40 per cent.

Railroad Earnings

THE curve of railroad earnings shows why the systems have launched upon an era of large expenditure for improvements. Net income in recent months has been at the highest levels since the war. This reflects good business, and economies, and it means improved credit by which betterments of facilities may be financed. In November the net income of Class 1 roads was $93,177,560. This was the largest net for any November since 1916. The net in October, the month of peak traffic, was $127,105,000.



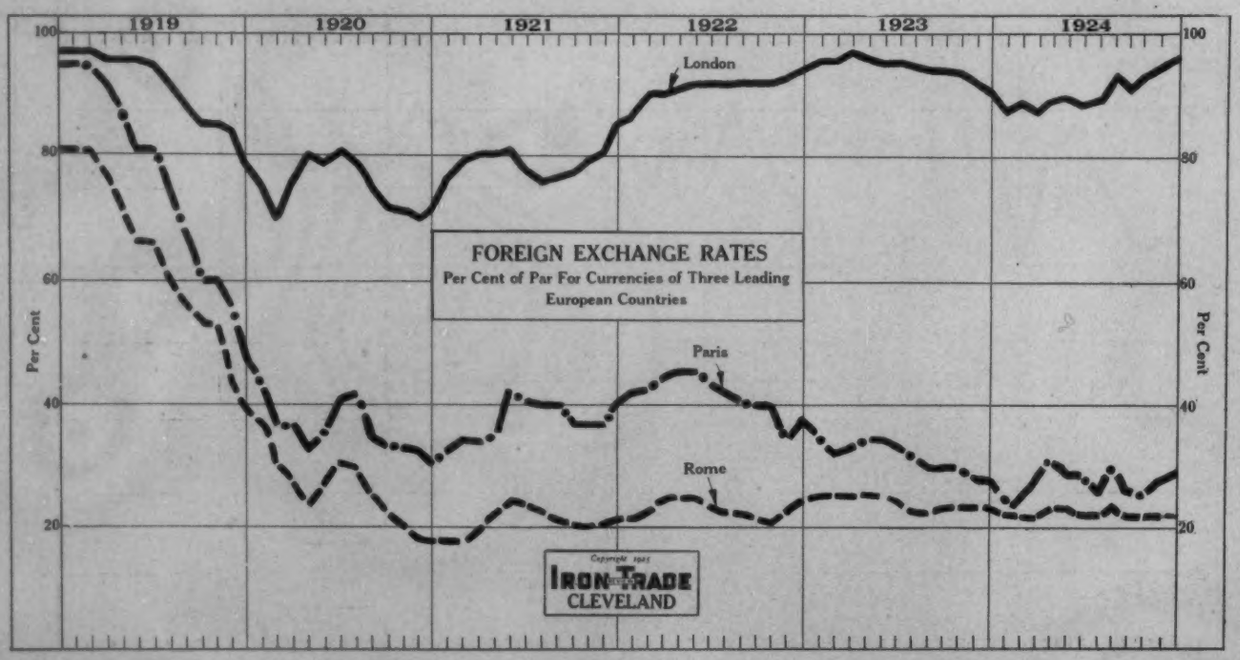


Ingot Production

THE production of steel ingots in December rose to a daily average of 136,609 tons. This compared with 124,289 tons in November and with 114,531 tons in December 1923. Since July 1924, the low point of the year's slump, ingot output has gained by 89 per cent. This is a sharper increase than that of 70 per cent in December 1921 from the July bottom level of that year. The aggregate output of ingots in 1924 was 36,645,444 tons compared with 43,485,655 tons in 1923, a drop of 15 per cent.

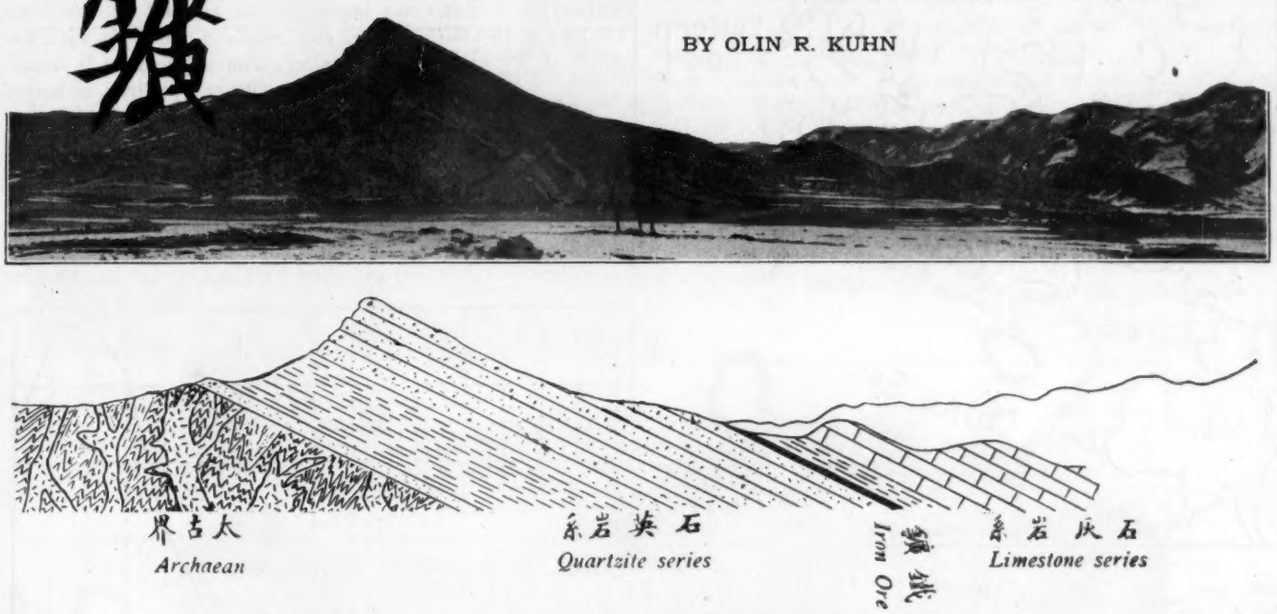
Foreign Exchange

THE most important movement of foreign exchange rates in recent years has been the remarkable advance of British sterling. Just one year ago sterling stood at $4.20. That was 13 per cent below its normal of $4.86. It has climbed now to within 2 per cent of par and return of Great Britain to the gold standard is believed to be a matter of days or weeks. That will give profound stimulus to the trend toward stability of international trade and finance. Europe is getting sufficient financial strength to attract gold.



China's Ore Reserves Prove Small: Far East's Three Billion Tons: Modern Blast Furnaces Coming Into Use

BY OLIN R. KUHN



What the mountain contains. Panorama and section of Yu-Tai-Shan, Hsin Yao, district of Hsuan-Lung, province of Chihli. This province has one of the largest ore reserves in China

CHINA always has been considered one of the world's large sources of iron ore, although until recent years little extensive exploring had been done. About ten years ago the mining department of the geological survey of China was established and under the direction of Dr. J. G. Anderson and afterwards F. R. Tegengren, with a staff of competent Chinese geologists, the country was thoroughly explored. In June, 1924, the geological survey published the results of these and other explorations in two volumes by Tegengren, which is the latest and probably the best authority on the iron ore reserves of China. This report shows a reserve of about 1,000,000,000 tons of ore which is being mined at the rate of 1,000,000 to 1,500,000 tons annually.

China can no longer be regarded as an inexhaustible storehouse of iron ore, to be drawn upon when the supplies of the other countries give out. Considering the fact the largest deposits are controlled or partly controlled by the Japanese, strict economy must be practiced to guard against future complications. Even if future investigation discloses resources double the present amount, which is rather improbable, the general situation would not be altered, as there are no vast reserves in the Far East to be drawn upon like there are in the Atlantic region.

Until recently nearly all the iron produced in China was made in native furnaces, of which quite a number still are in operation. China now has several modern blast furnaces which have a total capacity of about 1,000,000 tons annually, and the prospects are that this capacity will be increased in the future. At present consumption of pig iron per capita in China is only about 3 pounds, in comparison with the average for the entire world of 90 pounds, and about 550 pounds in the United States.

China's reserve probably will not exceed by any great amount the present estimate, which is only about one-third of the amount that we would expect, according to the area. It has been assumed first by Sjorgren and then by Eckel that the resources of iron ore of known countries are proportional to their area, that is 1646 tons per square mile of territory. Therefore, if we take the area of China and Manchuria to be 1,896,000 square miles, we would expect to find about 3,120,000,000 tons of iron ore in China, which figure is over three times the actual amount.

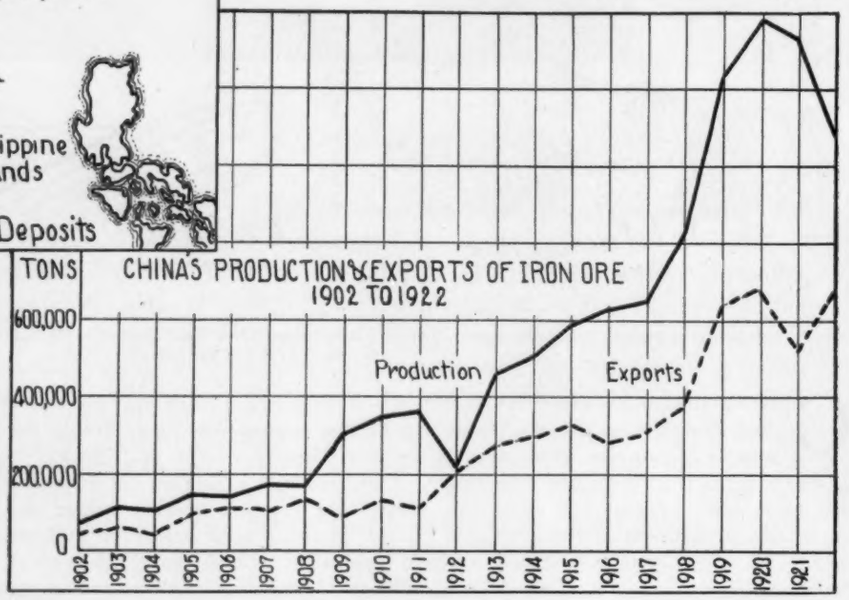
Seventeen provinces of China contain evidence of iron ore, but many of the deposits are small and scattered. Six provinces contain deposits of considerable size.

Following is a description of the deposits in the Chinese provinces and other iron ore deposits in the Far East:

Chihli: The province of Chihli in north central China contains one of the largest ore reserves in China, although the tonnage is only about one-tenth that of Fengtien, the neighboring province. Magnetite, hematite, and oolitic ores are found in Chihli and while some of the ores are very low in iron and high in silica, they can be concentrated into a desirable furnaces material. In Chihli are two main ore fields, the Luan-Hsien in the East and the Hsuan-Lung district in the West. The ores of the Luan-Hsien region are low-grade hematites and magnetities, averaging about 33 per cent iron and 43 per cent silica, which must be concentrated before they are available commercially. The mining can be done by the open quarrying method and the reserve is estimated at 32,572,000 tons of known ore and 5,000,000 tons of probable ore. The ores of the Hsuan-Lung district are generally oolitic or kidney ores averaging from 50 to 58 per cent iron and 7 to 20 per cent silica. These ores are mined by the underground method and the reserve is put at 45,736,000 tons of known ore and 46,142,000 tons of prob-

The author is associated with the Donner Steel Co., Buffalo.

LOCATION OF CHINA'S IRON ORE RESERVES, AND CHART SHOWING THE INCREASE IN CHINA'S PRODUCTION AND EXPORTS OF ORES



able ore. Practically no operation or development is being carried on in Chihli at present, although the Yung-Yen Co. recently blew in a furnace at Hanyang, which will use ore from the Yen-Tung-Shan district in Chihli.

Fengtien: The province of Fengtien in the southern part of Manchuria contains the largest reserve of iron ore in China, being credited with about 750,000,000 tons. This province is divided into four mining districts, the Miao-Erh-Kou, Kung-Ch'ang-Ling, An-Shan, and Kuo-Ti-Shan, located in the southern part near the coast. The Miao-Erh-Kou district contains low-grade magnetite averaging about 37 per cent iron and 45 per cent silica and high-grade ore averaging 68 per cent iron and 4 per cent silica. The percentage of high-grade ore is small, being estimated at about 1,400,000 tons. The tonnage of low-grade ore is put at over 70,000,000 tons. It must be concentrated before it is of commercial value. The mining is underground by the stoping and filling system. The concessions are held by the Pen-Chi-Hu Co., which operates two furnaces. Half of the company is owned by the Japanese, and all of the iron is shipped to Japan.

The Kung-Ch'ang-Ling deposits are usually low-grade hematites and magnetites averaging 30 to 40 per cent iron and 45 to 57 per cent silica, which must be concentrated before they are used. The reserve of these ores is put at 268,000,000 tons of ore that can be mined by the open quarry method. Some high-grade ore runs 60 to 69 per cent iron and fairly low in silica, but the available tonnage is only about 2,320,000 tons. The concessions are held by the Kung-Ch'ang-Ling Co., of which 40 per cent is owned by the Japanese.

The An-Shan district contains about 400,000,000 tons of open quarry low-grade hematite and magnetite ore, and about 2,000,000 tons of high-grade ore averaging 60 to 65 per cent iron. The Chen-Hsing-Kung-Ssu Co. operates there and the Japanese have an interest in the company.

The Kou-Ti-Shan district is rather small and contains only about 2,000,000 tons of low-grade siliceous ore. The total reserve of the Fengtien province has been placed at 750,000,000 to 1,000,000,000 tons of 30 to 35 per cent ore, which is by far the largest tonnage in any province of China.

Shantung: There is only one known workable iron ore deposit in Shantung, known as the Chin-Ling-Chen field, which contains about 13,700,000 tons of high-grade hematite and magnetite ore averaging 55 to 66 per cent iron. Part of this ore can be mined by open cut and the remainder will have to be taken from underground. The concessions are held by the Shantung Co. of which the Japanese control 50 per cent.

Shansi: The deposits of Shansi are not important on account of the thinness of the beds and the wide variation in their size. The ore usually is hematite averaging 50 per cent iron or more, but on account of the difficulty in mining the deposits probably never will be of any importance except locally.

Honan: The Hung-Shan deposits in Honan contain about 740,000 tons of high-grade hematite ore averaging over 60 per cent iron and under 10 per cent silica, but outside of local consumption, this tonnage will never be of commercial importance. The reserve of the entire province of Honan is estimated at about 1,000,000 tons.

Hupei: The province of Hupei is located in central China and contains three main ore deposits, the Ta-Yeh, Ling-Hsiang, and O'Ch'eng, in the eastern part of the province. The ore of the Ta-Yeh field is chiefly high-grade hematite averaging over 65 per cent iron and about 5 per cent silica. The reserve is estimated at about 20,000,000 tons of ore which can be mined by open quarrying. This deposit is owned by the Han-Yeh-Ping Iron & Coal Co., which is virtually in the hands of the Japanese. This company also owns large concessions in the Ling-Hsiang field and although this district contains only about 6,000,000 tons of high-grade hematite ore averaging about 60 per cent iron, 10 per cent silica, and 0.03 per cent phosphorus, it ranks among the high-

est grade ores of China. The O'Ch'eng deposit is estimated at over 10,000,000 tons of low-phosphorus hematite ore averaging 53 to 56 per cent iron, which can be mined by open quarrying, but no attempt has been made to utilize the reserves.

Anhui: There are four ore districts in the eastern part of the province of Anhui, the T'ung-Kuan-Shan, Yeh-Shan, Fan-Ch'ang, and Tang-Tu-Hsien, and although the reserve tonnage is not large the ore is fairly high grade hematite averaging 55 to 62 per cent iron and can be mined by open quarrying. The Fan-Ch'ang field is the only one worked at present and is estimated to contain about 4,000,000 tons of ore which is owned by the Yu-Fan Co., which is controlled by the Japanese. The T'ung-Kuan-Shan district is said to contain about 3,000,000 tons, but the reserve of the Yeh-Shan field is uncertain and no estimates have been made of the tonnage available. The Tang-Tu-Hsien district contains about 9,000,000 tons in about a dozen scattered deposits which are owned by the Lieh-Min Co., the Fu-Min Co., and the Chen-Yeh Co.

VIEW OF WEST AN SHAN, FENGTIEN, SHOWING OPEN CUTS AND INCLINES. THE PROVINCE OF FENGTIEN HAS THE LARGEST ORE DEPOSIT IN CHINA, ESTIMATED AT 750,000,000 TONS

BIG OPEN CUT AT T'IEH-SHAN, CHIN-LING-CHEN, PROVINCE OF SHANTUNG, AND, BELOW, PANORAMA OF THE T'IEH-MEN-KAN HILL, TA-YEH, PROVINCE OF HUPEI

Kiangsu: There are a number of iron ore deposits in the province of Kiangsu but none of them have been worked, although considerable exploring has been done recently. The Li-Kuo-Yi deposit is said to contain about 3,000,000 tons of high-grade hematite ore averaging 56 per cent iron and 10 per cent silica. Some of the ore can be taken out by open quarrying but the bulk of the tonnage will have to be mined underground. The concessions in this field are owned by Yuan-Shih-Fu, a Chinese. The Feng-Huang-Shan district contains some 2,000,000 or more of high-grade hematite ore averaging about 59 per cent iron and 12 per cent silica.

Chekiang: Little is known of the iron ore resources of the province of Chekiang, on the eastern coast of China, and only one deposit has been recorded. This is the Ch'ing-Niu-Shan field which is estimated to contain only 200,000 tons of hematite and limonite ores of 50 per cent and 30 per cent iron content respectively. This deposit probably will never be of any commercial importance although the concession in this field is held by the Ch'ang-Ch'eng Co.

Fukien: The iron ores of the Fukien province, south of Chekiang, have so far not proved of any great economic importance. The P'an-T'ien-Hsiang deposit is the largest in this province and is estimated to contain about 10,000,000 tons of magnetite ore averaging 65 per cent iron and very low in silica. The Su-Luan deposit is said to contain about 2,000,000 tons of hematite and magnetite ores averaging about 51 per cent iron and about 10 per cent silica.

Kuangsi: The Ma-On-Shan deposit in the province of Kuangsi, in southern China, contains less than 1,000,000 tons of low-grade magnetite ore averaging about 43 per cent iron which must be concentrated before it is of commercial value. The ore can be mined by open quarrying but by reason of the unfavorable location of the deposits much of the tonnage will have to be taken from underground.

Kiangsi: Five ore deposits are in the province of Kiangsi, the Cheng-Men-Shan, the T'ung-Ling-Shan, the Shang-Chu-Ling, the Ch'ien-Chia-Shan, and the Wo-Shih-Shan. Only the first two have been explored to great extent. The Cheng-Men-Shan deposit contains high-grade hematite ore, 60 per cent iron; limonite, 50 to 60 per cent iron; and low-grade siliceous limonite, 30 per cent iron. It is estimated to contain 6,000,000 to 7,000,000 tons of ore averaging 40 per cent iron. No mining operations have been carried out, but several years ago the Han-Yeh-Psing Co. purchased a large part of the deposit. The ores of the T'ung-Ling-Shan field generally are fairly high grade hematite averaging 51 to 56 per cent iron and under 10 per cent silica, but the reserve is estimated at only 580,000 tons. The Shang-Chu-Ling field should be quite large if it is continuous, which is rather doubtful. No estimates have been made of the reserve, but it is known that the ore is high-grade oolitic hematite running from 55 to 60 per cent iron. The deposits of Ch'ien-Chia-Shan and Wo-Shih-Shan

China's Production, Exports, Imports and Consumption of Iron and Steel

Year	Production Tons	Imports Tons	Exports Tons	Consumption Tons
1900	25,890	64,360	.....	90,250
1901	28,805	77,908	.....	106,713
1902	15,800	82,187	.....	97,987
1903	38,875	119,769	138	158,506
1904	38,771	81,585	12,334	154,261
1905	32,314	122,494	25,130	182,014
1906	50,622	181,120	34,326	197,416
1907	62,148	154,537	33,326	183,359
1908	66,410	142,665	30,890	178,185
1909	74,405	256,173	38,713	291,865
1910	119,396	259,064	65,362	313,098
1911	83,337	219,142	70,875	231,604
1912	7,989	152,418	12,514	160,407
1913	97,513	246,585	65,954	278,145
1914	130,000	232,212	62,487	299,725
1915	166,061	126,607	100,168	192,500
1916	199,160	146,949	155,914	190,195
1917	187,635	124,198	164,516	147,317
1918	184,144	150,243	190,514	143,873
1919	276,587	327,613	167,681	436,519
1920	257,648	369,390	198,293	428,745
1921	226,862	274,841	163,918	337,785
1922	163,672	367,654	211,091	320,235
1923*	260,000	.....	.....	.....

*Estimated—Pig Iron made in small native furnaces throughout China can be estimated at about 100,000 tons annually. This is in addition to the above.

are estimated to have a probable reserve of about 2,000,000 tons of ore, the greater part of which is low grade. No development has been done here.

Other provinces: While iron has been found and is known to exist in the provinces of Hunan, Kueichou, Ssuchuan, and Yunnan, no extensive exploration has been done and no accurate estimate has been made of the reserves. Oolitic ore averaging 52.68 per cent iron has been found in Hunan, while limonite and hematite ore averaging 50 per cent iron has been mined locally in Kueichou. Some low-grade hematite has been opened in Ssuchuan but it is consumed by the native furnaces only and no estimate has ever been made of the reserve. Many outcrops of magnetite and hematite are found in Yunnan, which could be mined by open quarrying, but no estimate has been made of the tonnage available. Following is a summary of Chinese reserves in tons:

Province	Known Low-grade	Known High-grade	Probable
Chihli	32,424,000	45,736,000	51,142,000
Fengtien	752,275,000	7,710,000	300,000,000
Shantung	.....	13,700,000	.....
Honan	.....	1,000,000	.....
Hupei	.....	30,176,100	.....
Anhui	.....	16,589,000	.....
Kiangsu	.....	5,070,000	2,000,000
Chekiang	200,000	.....	.....
Fukien	.....	12,000,000	.....
Kuangsi	910,000	.....	.....
Kiangsi	6,288,000	580,000	2,100,000
Total	792,097,000	132,961,100	355,242,000

China has the largest known reserve in the Far East, but the reserves of the countries in the Far East on the Pacific are very small when compared with those of Europe and the east coasts of North America and South America. The total reserve of the Pacific or Oceania countries is less than 3,000,000,000 tons or less than 7 per cent of the total reserve of the world. The following is a resume of the principal reserves:

Russian Far East: Estimates of 1,000,000,000 tons of known ore have been made for European Russia, but the reserve of eastern Siberia has been little explored. Polevoi estimates 2,000,000,000 tons of 50 to 56 per cent magnetite ore in the South Ussuri region, and the same amount of hematite in the Maly-Hingan. A deposit of limonite or bog ore is at Nikilayevsk. This is said to contain about 800,000 tons, so that the total reserve for eastern Siberia can be placed at about 5,000,000 tons. Some of this tonnage can be used by China if necessary, but the tonnage is so small that it would not be effective. Less than 100,000 tons of iron and steel are consumed in the Russian Far East provinces annually.

Japan: Japan is the chief consumer of iron and steel products in the Far East and only a fraction of its iron production is made from domestic ores as these are inadequate to supply the demand. Japan consumes about 1,200,000 tons of iron ore annually, more than half of which is imported from China. K. Inouye estimates the total reserve of Japan at about 80,000,000 tons composed of the following deposits with an average iron content of 50 to 60 per cent:

		Tons
Magnetite:	Kamaishi and Iwate	35,000,000
	All other provinces	5,000,000
Hematite:	Echigo, Rikuchu, etc.	30,000,000
Limonite:	All islands	10,000,000
Total		80,000,000

French Indo China and Siam: The

Modern Ironworks of China and Maximum Capacity

Company	Location	No. of Furnaces	Maximum Capacity	Ores Used
Han-Yeh-P'ing Co.	Hanyang	4	216,000	Han-Yang, Hupei
Han-Yeh-P'ing Co	Tayeh	2	324,000	Te-Yeh, Hupei
Liu-Ho-Kou Mining Co.	Hankow	1	56,000	Hsiang-Pi-Shan
Pen-Hsi-Hu C. & I. Co.	S. Manchuria	2	91,000	Miao-Erh-Kou
Yung-Yen Co.	Hanyang	1	(a) 90,000	Yen-Tung-Shan, Chihli
Kai-Lan Mining Co.	Ching-Wan-Tao	1	(b) 90,000	
An-Shan-Chan	Mukden	2	180,000	An-Shan
		13	1,047,000	

(a) Blown in 1924.
(b) Under construction

Cost Per Ton of Producing Pig Iron in China

	Han-YehrP'ing Co. Hanyang			Liu-Ho-Kou Co. Hankow		Pen-Hsi-Hu Co. Pen-Chi-Hu	An-Shan Co. An-Shan
	1919 (Lieu)	1920 (Wang)	1922 (Hoyt)	1923 (Wang)	1920 (Hoyt)	1921 (Wang)	1922 (Hoyt)
Iron Ore	$ 3.27	$ 3.33	$ 4.57	$ 3.94	$ 4.93		
Manganese ore	1.09	.33	1.52	.14	.16	14.83	
Limestone		.46		.32	.42		
Coke	12.28	13.26	18.60	10.76	13.73		
Scrap	1.89	.16	....	....	....		
Total	18.53	17.76	24.69	15.16	19.24	14.83	35.50
Labor	.27	.28	.62	.55	....	1.26	
Supplies, etc.		.12		.30		....	
Repairs & maint.	2.91	.19		.28	3.16	1.29	
Replcm't of tools.		.36	4.48	.03		....	
Power		.62		....		1.28	?
General expense	1.17	.96		2.60	?	3.82	?
Financial expense	1.38	3.60	4.00	2.80	?	....	?
Total	$24.25	$23.89	$33.84	$21.72	$22.40	$22.48	$35.00

D. K. Lieu—Former cost accountant of the Hanyang Works.
L. W. Hoyt—American trade commissioner in Shanghai.
C. Y. Wang—Mining expert, Liu-Ho-Kou Mining Co.

Assembling Costs in China and United States

	Yangtze Furnace Liu-Ho-Kou Co. Hankow	Valley Furnace Youngstown, O. U. S. A.
Ore	$1.04	$5.48
Coke	3.64	2.77
Limestone	.18	.42
Total	$4.78	$8.67

deposits of French Indo China and Siam are small and unimportant even for future consumption.

Philippines: Several large deposits of iron ore are in the Philippine islands and the total reserve can be stated as about 400,000,000 tons. The bulk of this tonnage is similar to the Mayari ores of Cuba and will average 47.40 per cent iron and 12.90 per cent water. Several small deposits of hematite and magnetite ores run as high as 63 per cent iron. This reserve of ore can hardly be said to be available, except in a small part for China, as probably the bulk of it will be consumed in the United States along the west coast.

Netherlands East Indies: Netherlands East Indies or Borneo probably will play the most important part in the future iron supply of the Far East, as its ore reserve is estimated at about 800,000,000 tons. The bulk of the tonnage is similar to the Surigao deposits of the Philippines and the Mayari deposits of Cuba, although there are several small deposits of magnetite in South Sumatra estimated to contain 2,000,000 tons of 65 per cent ore. There also are large titaniferous magnetite deposits in Borneo, but it probably will be some time before they are developed. The Borneo Iron & Steel Works was formed recently and now is building furnaces to utilize the Borneo ores. The reserve owned by this company is estimated at over 100,000,000 tons.

The following gives roughly the ore districts in Netherlands East Indies:

District	Reserve tonnage	Per cent Iron content
Seboekoe island	300,000,000	50
Soengei Doewa	100,000,000	50
Celebes	380,000,000	49
South Sumatra ..	2,000,000	65
	782,000,000	

Australia and New Zealand: Australia and New Zealand have an ore reserve of about 400,000,000 tons of fairly high-grade ore and consumes from 500,000 to 1,000,000 annually, producing 350,000 to 600,000 tons of iron. Following are some of the deposits in Australia and New Zealand, with iron running 40 to 60 per cent.

Deposit and Location	Reserve
Murchison, W. Australia	27,000,000
Yampi Sound, W. Australia	100,000,000
Iron Knob & Iron Monarch, S. Australia	70,000,000
Mt. Leviathan, Queensland	22,000,000
E. Gippsland, Victoria	1,000,000
Cadia and Carcoar, N. S. Wales ..	42,000,000
Blythe river, Tasmania	17,000,000
Long Plain, Tasmania	50,500,000
Parapara, N. Zealand	64,000,000
	363,500,000

The reserves of the Far East show a total of less than 3,000,000,000 tons, which will not more than take care of the increased requirements of those countries in future years, so that the remainder of the world cannot count on the Far East for much ore. Although their annual consumption of ore is not large at present, the modern iron industry in those countries still is in its infancy and will no doubt expand considerably in the future. The following gives a rough estimate of the reserves and the consumption of the Far East countries:

Country	Reserve tonnage	Approximate consumption
China 1,000,000,000		400,000
Russia Far East ..	5,000,000	100,000
Japan	80,000,000	1,200,000
Philippines	400,000,000	100,000
British Borneo	25,000,000	.....
Netherlands E. Indies	800,000,000	200,000
Australia, etc	400,000,000	500,000
Totals 2,710,000,000		2,500,000

An accompanying table gives the cost of producing pig iron in China. The figures by Hoyt probably are a little high. Ore is produced cheaply, and coke and financial expense are the largest items in the costs. The assembling cost of the raw material probably will average about one-half that in the United States, taking the Mahoning valley for comparison.

Consider Standard Manhole Covers

A PRELIMINARY conference on the simplification of manhole frames and covers was held in Washington, recently under the auspices of the division of simplified practice, department of commerce. R. M. Hudson, chief of the division of simplified practice, was in charge of the meeting and outlined briefly the purposes and methods of operation of the division in the elimination of waste in industry through simplification of varieties.

Robert E. Moore, the Flockhart Foundry Co., Newark, N. J., told of a survey conducted by his company on the manufacture of manhole covers. He reported that covers still are being made with certain details and dimensions originally developed to meet conditions and practices which have disappeared. His company now is manufacturing 140 types of circular frames and covers besides many square and rectangular styles. He stated that standardization would assist greatly in making prompt deliveries, which sometimes would prevent the tying up of large paving operations. He pointed out that a reduction in cost should be realized since there would be less labor charge for making patterns and fewer changes in patterns already built. Attention was called to the fact that co-operation of the engineers of larger cities is important since many of the smaller cities copy the designs of the larger places. The American Telephone & Telegraph Co., in eliminating unnecessary varieties, uses one set of standards throughout its system, having standardized design and weight but not the fitted parts.

C. L. Lincoln, S. E. T. Valve & Hydrant Co., and also representing the Water Works Manufacturer's association of New York stated that he believed the greatest number of variations occur in the smaller towns, and that the co-operation of these places must be secured. He expressed the belief that the fit of covers is of great importance and that facilities for locking are not necessary for the general run of covers. He stated that breakage is a function of design and not of large size.

L. B. Fish, department of development, American Telephone & Telegraph Co., explained the two types used by that company. The question of ventilation is left to the associate companies as some cities have municipal regulations covering this matter. However, ice and dirt tend to block the apertures and where gas accumulates, the openings offer opportunity for sparks to cause explosions. For these reasons he stated that ventilated covers are of great importance.

Francis Shanley, sewer department, Chicago, outlined conditions as they exist in that city and stated that by reducing the depth of the frame from 9 to 7 inches, a saving of 500 tons of iron in a year was made.

At the conclusion of the general discussion it was resolved unanimously that simplification of manhole frames and covers is practical and highly desirable; that the American Engineering Standards committee be asked to assist a standing committee of the industry in working out a tentative schedule to be presented to a general conference of all interests; that the division of simplified practice of the department of commerce continue its survey of existing conditions and cooperate with the industries simplification committee and the American Engineering standards committee; that until the personnel of the industries simplification committee is selected, the representatives attending the preliminary conference consider themselves as a committee of the whole to assist in carrying out the first steps leading to the general conference.

Baking Enamel by Electricity

Detroit Automobile Manufacturer Has Secured Large-Scale Production Without Sacrificing Quality, Economy or Dependability— Temperature Control Closely Supervised

BY HARRY ALLEN

ENAMELING at the motor car plant of Dodge Bros. Inc., Detroit, was done for the first time December, 1914 in 15 box-type, direct-fired ovens. These were used for enameling bodies, open-model type, and had a capacity of four bodies each. The time of bake was 4 hours, and as the production increased they were operated day and night. The output of the plant was increasing rapidly, and it was evident that radical changes would be necessary in the enameling department to keep step with the rest of the plant. As there was no room for the addition of similar oven units, it was decided to do some experimental work, which would have for its object the determination of the best enamel and correct temperature for the shortest time of bake, maintaining, however, the high quality of the finished product. A brick and plaster oven was constructed, amply large to hold one body. In order that uniform heating conditions might be had over a wide range of temperatures, electric heaters were installed.

Co-operating with the enamel manufacturers, sufficient test data were obtained to show that a considerable saving in time of bake was possible, and that there were many advantages in the use of electricity for heating. After the prejudices against the use of electricity for this purpose, prevalent at that time, had been overcome, it was definitely decided to equip the ovens with electric heaters. However, the gas ovens were not suitably constructed for this application, and confronted with the prospect of building new ovens, our engineers went one step further and designed conveyor-type units. Four new ovens were constructed, through which the bodies, carried on a continuous conveyor chain, pass progressively. These are the burn-off, prime coat, first finish coat and second finish coat ovens. The body of each oven is laid on the roof of the building, the work entering and leaving on a vertical ascent from and descent to the top floor. The interior cross section is 10 feet 10 inches high by 6 feet 4 inches wide. The first two ovens are 123 feet long, and the second two 213 feet long. The bar conveyor itself is 3220 feet long and has 251 cross bars spaced 12 feet 10.5 inches apart.

The construction was done in place, and there is no through metal in the oven walls. To make this possible, 4 inches of insulating brick was laid on the building roof and on this the sheet-metal lining was set up, so that it was self supporting with braces on the inside, and carried the conveyor guides as well. The balance of the insulation was then applied, so that the wall and roof cross section from the inside out shows metal lining 1 inch air space, 4 inches insulating brick and 2 inches metal lath and plaster.

Total Capacity Not Needed

The electric heater capacity installed was 616 kilowatts in each of the first two units, and 724 kilowatts in the third and fourth. Less than one-half of this capacity is needed during the operating period. To permit control of the heating and cooling curves, ovens No. 1 and 2 each are divided electrically into five zones, and No. 3 and 4 into six zones, each zone controlled independently and automatically. Part of the heaters in each zone, however, are connected together on a permanent heat circuit which supplies the constant heat losses in the oven.

It was necessary to eliminate dust and dirt from the work while in process, and the space directly underneath the ovens, for the full length of the conveyor, was separated from the rest of the floor by steel and steel sash partitions closely fitted. Air which has been washed, tempered and humidified, then is forced into the room through centrifugal fans, maintaining a small pressure inside this room. This air escapes as oven ventilation and through crevices in the room walls, and an atmosphere is maintained which is practically dust-proof as well as pleasant to work in. A further advantage is had in that there is little or no escape of fumes from the ovens into the enameling rooms. To cut down the dust hazard further, the japanning rooms were floored with hard maple which is frequently painted with oil, and the oven interiors are wiped down systematically with rags which have been dipped in coal oil.

The progress of the work is as follows: Touring car bodies are received from the inspection department on trucks, pushed under the loading end of the conveyor, and are lifted off by the engagement of a conveyor bar with the hooks on the body hanger straps. As the body passes over the first platform or deck, the interior is sprayed with enamel. The outside is then washed with low-test gasoline applied with rags. This operation removes the scattered spray and softens the grease left on the body by the press dies, and the oil put on the metal for protection against rust. The body then passes up and through the burn-off oven where two objects are accomplished; the enamel is baked on and the grease is burned or charred on the metal and in seams.

The body then passes successively over a sanding deck where uneven spots are lightly sanded, wiped with a varnish-dipped cloth called a tack rag and over the prime coat deck where the enamel is flowed on, over the drip pan and into the prime coat oven. This process is repeated for the first finish coat and second finish coat ovens, and in leaving the latter, the body passes over the inspection deck where the drippings are removed and it is rigidly inspected under intense light furnished by mercury vapor lamps, which have been found to be most suitable for this purpose. Defective bodies are sent to the lye-tank room to be cleaned preparatory to re-enameling, and the accepted bodies are loaded on trucks and sent to the assembly line. With the present cycle of operation, these oven units have a capacity of 36 bodies per hour. The number of bodies in process at any one time is 159.

Enameling of fenders and miscellaneous parts also was done in box-type, indirect, gas-fired ovens. These were replaced by two continuous-conveyor oven units for two-coat work. The oven lengths were 175 feet and 240 feet and the electrical capacity installed was 264 and 376 kilowatts, respectively.

Since neither temperature control nor uniformity of temperature were important factors, the metal was still burned

From a paper presented at the Detroit meeting of the American Electrochemical society, Oct. 2-4, 1924. The author is associated with Dodge Bros, Inc., Detroit.

off in the gas-fired ovens. As production increased to the point where the capacity of these units was reached, it became necessary to build additional ovens. Three new sets of ovens were constructed and as it was desirable from the standpoint of durability of finish to do a three-coat job, three ovens comprised each set, with installed heat capacity of 486, 480, and 522 kilowatts respectively. The three sets are side by side and have one common gas-fired burn-off oven. To economize in space the layout is so arranged that the axis of the No. 1 ovens is at 90 degrees with the axis of the burn-off oven, and also at 90 degrees with the No. 2 ovens. A simple monorail conveyor was designed with automatic loading and unloading devices to transfer the work from one bar conveyor to the other. The old fender ovens are now used to enamel battery boxes, disk wheels, etc.

Two Units Enamel Axles

On the roof of the die shop, ovens were built to enamel the front and rear axles. The front axle receives only one coat, and the oven for this purpose has a capacity of 288 kilowatts. The rear axle housing passes through a first-coat oven, the assembly is completed, including filling the housing with grease, and then through the second-coat oven. The operating temperature of the latter is only 150 degrees Fahr. The electrical capacity of these two units is 264 and 168 kilowatts, respectively.

The bodies of closed models formerly were made on a wood frame and painted in the customary way. In 1922 a 100 per cent steel body was designed, and the same enameling methods used on the bodies of the open models was made possible. On account of limitations of space in this department, conveyor ovens were out of the question. Twenty-three box ovens were installed, each having a capacity of two bodies. A truck made of light angle iron carries the body from the start to the finish of the process. The same number of coats is applied as in the open model, and the enamel is flowed on. The burn-off requires only 30 minutes, and the time of bake is one hour. Twelve new ovens were added in 1923. Each of them takes 3 bodies and has 135 kilowatts in heaters.

As constituted at this time there are 984 men working in the enameling plant, Of this number 856 are directly under the superintendent of enameling, and 128 are from the several units in the production department which have some share of the work. The latter, however, are entirely independent and, like the enameling department, report directly to the office of the production manager.

Authority to accept or reject finished work is in the hands of the factory inspection department, and it is the standard of quality set by this division which must be met by the enameling department. That this inspection is close is indicated by the number of rejects, which for the box-type ovens is 22 per cent and for the conveyor type 12.5 per cent.

Control of the heating circuits is by electrical department operators. Operating temperatures, however, are specified by the superintendent of enameling. The control of all conveyor ovens is centered in two small buildings, which are located on the roof of the plant. Each heating circuit has a corresponding temperature recording and indicating instrument mounted on a panel, and can be connected so that it is either hand-controlled or automatically operated with instrument control. This is accomplished by pull switches on the panel, with the operation indicated by colored lights. The control room operator is in close touch by telephone with the operators at the discharge end of the ovens, so that observed changes in the quality of the work, which are subject to correction by a temperature change, are reported without delay. Should the conveyor speed be changed or a different job started through the ovens he is advised at once.

Considerable attention had to be given to the method of loading the work, bearing in mind the limitations set by reflow, ventilation, drip and maximum loading ability. The surfaces of the piece must be so inclined that a free flow of enamel occurs during the dripping period. It is also true that with an enamel of given specific gravity the time of drip must be long enough to allow the excess enamel to flow off. To obtain proper ventilation, all finished surfaces must be exposed to the current of ventilating air, otherwise the light thinners which are driven off as the work comes up to temperature will become pocketed and wash the metal bare of enamel.

To secure the best loading conditions the hangers or carriers must be made to an exact pattern and the work bunched together closely, due regard being given to the possibility of drip from one piece to another. Improvement of the hanger designs has increased the capacity of the ovens, and at the same time cut down the cost of heat per set of finished work.

Experiments are being conducted on the amount of air required per gallon of enamel. While it is claimed that from 2000 to 2250 cubic feet of air is sufficient per gallon, in practice this amount is much too low. With too little ventilation the finish has a flakey or "buttermilk" appearance. In laboratory practice 2200 cubic feet per gallon is sufficient, but in production many times this amount is required. It is true, however, that the oven design may be partially responsible for this condition. In the conveyor ovens natural exhaust stacks are installed at both ends of the ovens. These stacks have adjustable dampers that can be locked in various positions, according to weather conditions and seasons of the year. In the box-type ovens a natural exhaust is used and a certain amount of fresh air is forced in by a fan. The chemical laboratory has installed meteorological instruments, similar to those used in weather bureaus, to record all atmospheric conditions, and to investigate their relations and influences on enameling and oven ventilation.

Enamel is bought from the manufacturer to conform as to the percentage and kind of oil, gum, thinners and pigment, with the analysis which has been found most suitable for the work. This analysis is checked by the chemical laboratory, and at the same time physical tests are made for the purpose of checking the color, viscosity, baking time and temperature, fineness of pigment, toughness of coat, and luster. All material is inspected at the manufacturers' plant, and the drums also are inspected for cleanliness before filling. Approximately 1500 drums of 54 gallons capacity each are carried in stock. When this enamel is needed, it is pumped out of the drums into a make-up tank, thinned out to the proper viscosity, and pumped into the feed lines to the dip tanks or flow guns.

Enamel Is Kept Clean

From the dip tanks of the ovens that bake the fender and miscellaneous parts this enamel can be circulated in much the same way. The customary practice, however, is to withdraw the enamel once or twice a week to be clarified or filtered. In this way the small amount of dirt which comes through on the work and is washed off by the enamel is removed. The dust or dirt particles that stick to the metal in passing through the dip are baked on, and must be removed at the sanding deck; otherwise, their size will be exaggerated with each succeeding enamel coat.

To secure uniformity of flow of the enamel it is necessary to maintain a constant temperature in the enamel tanks as well as in the rooms. Should the enamel temperature be too high,

cold water is circulated through pipe coils, which are submerged in the dip tanks.

When the tank temperature becomes too low it is brought back to normal by electric heaters which are arranged around the outside of the tanks. Should one of the dip tanks catch fire the breaking of a fusible link opens a 6 inch quick-opening valve, and drops the enamel into one of several 7000-gallon fire tanks where it can do no damage.

Due to the fact that there is such a diversity of work passing through the different conveyor ovens, it is almost impossible to segregate costs for any one part. The average cost per car, however, is an exact figure. This has been determined for the first 6 months of 1924, and is the cost of 484 kilowatt-hours of current.

Study Quenching Media for Heat Treatment

Work has been in progress recently at the bureau of standards Washington, to determine which of the governing factors in aqueous quenching solutions are the predominating ones, so that predictions as to the solution and its concentration giving the desired cooling velocities can be made. Motion pictures of samples, during actual quenching, on which regular cooling curves are being obtained, have been taken by using a suitable glass quenching tank.

Apparatus is now being designed and built for pressure quenching as a means of getting increased rates of cooling for given solutions, and for making emulsions of oil and water without the use of air so that rates of cooling intermediate between oil and water may be obtained.

May Reduce Sizes of Machine Knives

Makers of machine knives with the co-operation of the simplified practice division of the department of commerce are about to consider a reduction in sizes, it is announced by the division, after a study of the problems arising from a wide range of variations in blade dimensions.

The makers of these knives have voted to have a simplification committee, with George Butterfield, of the knife information bureau, Fitchburg, Mass., as its secretary. The committee will seek the co-operation of the manufacturers of knife-using machinery to bring about standardization so that further progress can be made in elimination of unnecessary sizes.

BETHLEHEM'S PRODUCTS IN MUSEUM

Permanent Exhibits Show Materials and Processes from Ore to Great Variety of Supplies

TO DISPLAY their variety of products, the Bethlehem Steel Co. and Bethlehem Shipbuilding Corp. have equipped a museum on Third street, Bethlehem. The main building is 30 x 130 feet with two wings, each 35 x 100 feet, the floor space being approximately 10,900 square feet. The building is open to the public and is in charge of an attendant competent to explain the uses of each product and the steps involved in its production. This museum of all the products made at all of the Bethlehem plants has been prepared not only for the inspection of visitors, but because of its interest to the Bethlehem companies' own workers. It is of particular educational value to students in nearby universities and technical schools.

An important exhibit in the museum is an assembly of all of the materials going into the manufacture of pig iron. This shows coal, iron ore and limestone, in the correct proportions, as the basis of the finished product. It shows the coke and various by-products obtained from the coal, and is accompanied by cubes which afford a measurement of the volume of air required in producing pig iron and the volume of the gases which are given off both in the production of coke and pig iron. Nearby is an exhibit containing samples of all of the various kinds of iron ores, alloy ores and ferroalloys used in the production of steel. Numerous rock sections obtained with diamond drills are included in this exhibit.

In addition to the comprehensive line of finished rolled products, the museum contains specimens of railroad track work, fabricating machinery, agricultural specialties, automobile steels, boiler heads and tubes, boiler-making tools, fabricating machinery, all kinds of castings and forgings, ingot molds, gears and pinions, bolts, nuts and rivets, rolls, tool and ordnance material made by the Bethlehem Steel Co.

It contains models of all of the plants of the Bethlehem Shipbuilding Corp. and shows the various products such as marine equipment of all kinds, mining and milling machinery, cars, oil well equipment, wax plant equipment and other products of the company. The museum contains a large collection of photographs covering all phases of mining, steel production and of complete information on the tests to which steel is subjected.

Among the exhibits is a full size section of one of the Hudson river vehicular tubes, 29 feet, 6 inches in diameter. This is attached overhead to roof supports. A smaller exhibit shows more details of the tunnel. Models of the metal linings are attached to a board, the models, being one-fifteenth actual size. Each ring is 29 feet, 6 inches diameter, and the tubes are 65 feet from center to center. One hundred and ten thousand tons of cast steel and iron, segments and keys were required, of which the Bethlehem company mills supplied 60,000 tons of iron, and 10,000 tons of steel castings.

An almost endless variety of iron and steel products are represented in some form. Among them are agricultural steel and specialties; automobile steel; axles, bars and bands; billets, blooms and slabs; blanks for gears, pistons, flywheels and the like; boiler heads; boiler makers' tools; boiler tubes; bridge and other structural material; by-products; car wheels, freight cars; castings; coal and coke; drop forgings; engine; ferromanganese; forgings, frogs and switches; industrial and mine trackwork; machinery; ordnance; piling; plates; rolls; shafts; sheet steel; shipbuilding shapes tin plate; tool steel and wire and wire products.

Good Mine Ventilation Declared Essential

Good mine ventilation enables a miner to work well in hot places, states Dr. R. R. Sayers, chief surgeon of the bureau of mines, in a recently issued bulletin. Many mining companies have installed specially designed ventilating systems for the purpose of lowering temperatures, one large mining company having spent more than $70,000 to sink a ventilating shaft and to buy ventilating equipment. It has been reported that this installation pays for itself once every six months in savings and in better work for the miners.

The bureau of mines found that where the temperature of the air is above 75 degrees Fahr. and the relative humidity, or moisture content, is high, the miner is more comfortable and can work better if the air is moving. If the air moves at the rate of 100 feet per minute, a miner is comfortable and can work as long as the temperature shown by a wet bulb thermometer is not above 85 degrees Fahr. The same is true when the temperature is between 85 and 90 degrees, provided the air moves 200 to 300 feet per minute. Still air at a temperature of 90 to 95 degrees is extremely oppressive, but air of the same tempera-

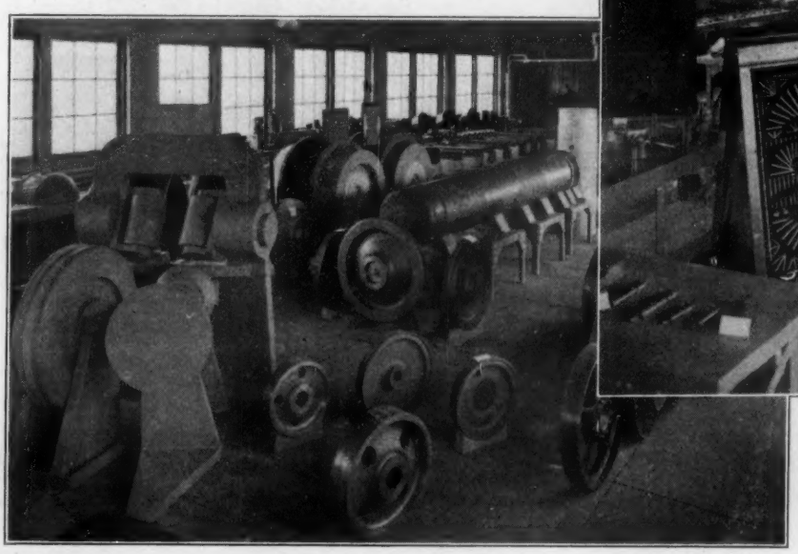
Variety Features Iron and Steel Exhibits

One of the interesting features of the Bethlehem Steel Corp.'s museum is the exhibit of projectiles and other war materials

All of the raw materials used in the manufacture of pig iron and steel are displayed in that portion of the exhibit shown at the right

Cross-sections of shapes produced in the company's mills, and a multiplicity of cutting tools interest spectators

A great variety of nails, spikes and bolts are displayed effectively in the form of artistic designs



Some of the heaviest products of the Bethlehem works have been placed in the museum. These include the car wheels and parts for heavy machinery, shown at the left

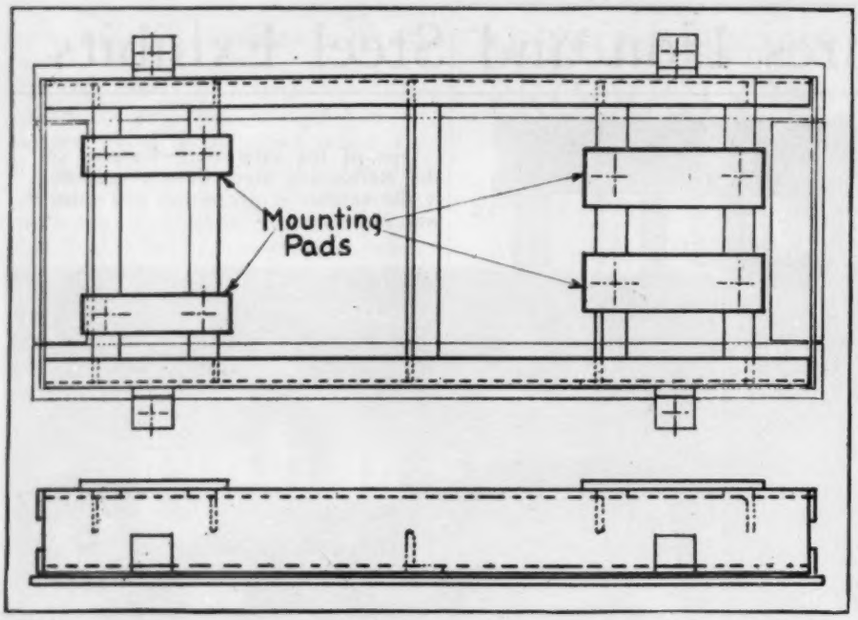


FIG. 1—DRAWING OF WELDED MACHINERY BASE IN WHICH STANDARD STEEL SHAPES ARE USED

ture is much less so when it is moving 400 to 800 feet per minute.

Recent studies have shown that miners can be more comfortable and do much better work in air of high temperatures and humidities if a small portable fan is used to make air movement. This method, however, should be used only in emergencies or temporarily until a permanent ventilating system can be put in to replace hot humid air with cooler pure air and thus keep harmful gases from collecting abnormally.

Test Steel Sheets for Welding Qualities

Manufacturers of oxyacetylene welded sheet steel products encounter certain lots of sheets which give unsatisfactory welds, apparently on account of the evolution of gas as the molten weld metal freezes. Samples of satisfactory and unsatisfactory sheet steel have been submitted to the bureau of standards, Washington by a tube manufacturer, and similar samples have been promised by a manufacturer of welded steel barrels. One manufacturer has stated that there is some evidence that an aluminum treated steel is quite liable to give a poor welding sheet. Analyses are in progress to determine if any difference exists in the gas content of these two grades of welding steels.

The Cleveland-Cliffs Iron Co. has purchased a coal dock at Escanaba from the Chicago, Milwaukee & St. Paul railroad. The dock has capacity for 75,000 tons of coal. It has been idle for about five years.

Making Machine Bases by Welding

Among the applications of electric welding described in a recent bulletin of the Lincoln Electric Co., Cleveland, is that of electrically welding steel shapes to form the base and other parts of machinery.

It is stated that bases fabricated by this method are unusually light, have a thin section and are rigid and strong. A typical welded steel base is shown in Fig. 1. It will be noticed that the principal elements used in making this machinery base are longitudinal members, holding down lugs, cross members, end ties and mounting pads. Bases of this type are applicable to a wide variety of equipment including bases for motor driven pumps, positive blowers, gear reducing sets, elevator engines, mine hoists and steam shovel hoists and base frames for steam shovels, locomotive cranes and other kinds of miscellaneous machinery.

While this method is comparatively new it is being employed by a number of machine tool and machinery builders. Fig. 2 shows a welded base which is being produced for $10.41 as compared with $19, the cost of the base formerly used.

Show World's Progress in Water Power

Although the United States has developed more water power than all the rest of the world, European countries are making considerable progress in obtaining power from this source. Germany has taken the lead in water power development. The territory in the former Empire of Austria, Hungary, Norway, Sweden, France, Italy and Switzerland also are developing their natural resources, spurred largely by the scarcity of coal.

To bring to the attention of engineers and others the progress already made by France and various other countries in the production and distribution of electrical energy and every form of electrical application, including transportation, an international exhibition of hydraulic power and transportation is to be held next spring. By showing what already has been accomplished, an idea may be gained as to what is yet to be done.

The exhibition will be housed in the Grand Palais de la Houille Blanche (Grand Palace of the White Coal). Besides this building there will be a palace of Tourism which will be devoted to applications of electricity, railway rolling stock, transportation and the modern house.

As Grenoble is in one of the most picturesque regions of France, advantage incidentally will be taken of the surrounding scenery. A so-called orientation tower, 260 feet high, located in the center of the grounds will afford a fine view of the neighboring Alpine heights. French colonies also will be represented at the exhibition. Scientific and industrial congresses are to be held during the exhibition and will be attended by delegates who have been invited from various countries.

Statistics on water power show the potential and developed water power of the various countries in 1920 to be as follows:

	—Horsepower—	
	Developed	Potential
United States	9,243,000	28,000,000
Canada	2,418,000	20,000,000
Sweden	1,200,000	4,500,000
Norway	1,350,000	5,550,000
France	1,400,000	4,700,000
Switzerland	1,070,000	1,400,000
Germany	1,000,000	1,350,000

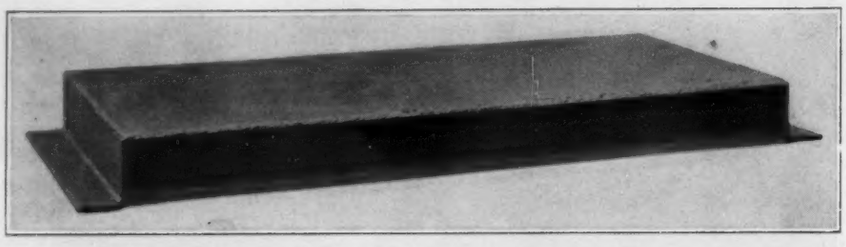


FIG. 2—A WELDED STEEL BASE WHICH WAS PRODUCED FOR $10.41

A New Repair Ship Will Back Up Pacific Fleet

Designed Primarily To Carry Machine, Pattern, Forge, Pipe and Sheet Metal Shops and Foundry, the U. S. S. Medusa Is the First Specially Built Repair Ship of the Navy—Equipment To Handle Wide Range of Work

BY LIEUT. COMMANDER A. M. CHARLTON

IN ADDITION to the repair equipment on battleships, airplane carriers and tenders, which is for small jobs, the United States navy provides another class of vessels for each fleet to care for the work beyond the capacity of the tenders and for major repairs on capital ships. These vessels are called repair ships and at present one is assigned to the fleet on each coast. These vessels combine as far as possible the repair facilities of a navy yard with the ability to move from place to place accompanying the fleet.

Until the present year, the navy has had no vessel designed and built as a repair ship. The two in commission, the VESTAL and the PROMETHEUS, were built tor colliers and later converted to repair ships. Their equipment was influenced by the fact that they were not originally designed for repair ships and thus lacked some features desirable in that class of vessel.

The MEDUSA, which was commissioned in July, was authorized as a repair ship by congress, her keel being laid on Jan. 2, 1920 at the navy yard, Puget Sound, Wash. She is 483 feet 10⅛ inches long overall, has a beam of 70 feet and at her normal displacement of 10,000 tons has a draft of 18 feet 11¾ inches. She is a single screw vessel with a geared turbine made by the W. & A. Fletcher Co., Hoboken, N. J., and two oil burning boilers built by John I. Thornycroft & Co., Ltd., London, England, each with a heating surface of 7000 square feet. Her estimated, full-power speed is 16 knots and when making this speed she develops 7000 shaft horsepower. To furnish lighting and power for the many activities of the vessel, four 125 volt direct current turbogenerators are installed with a total

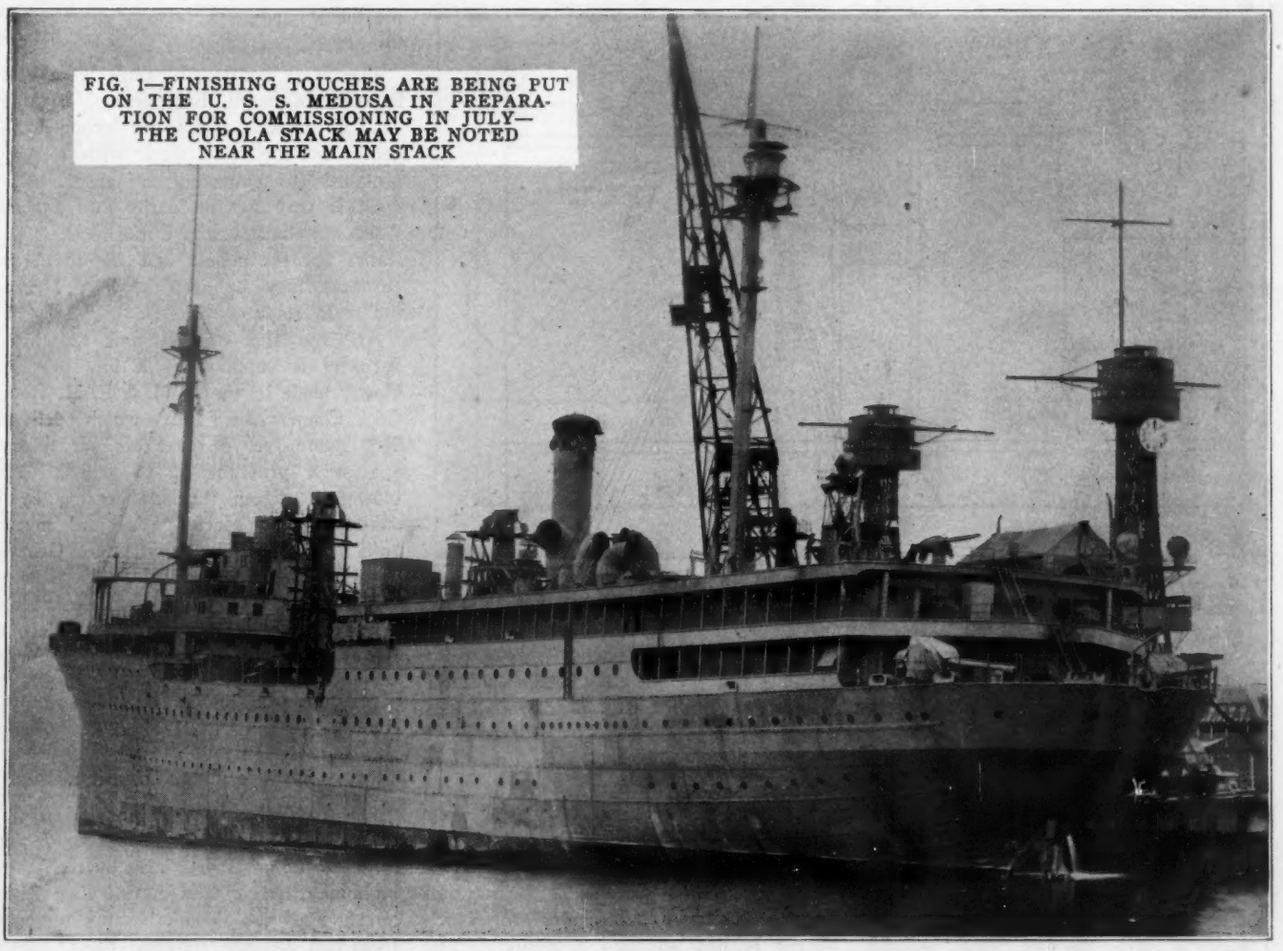


FIG. 1—FINISHING TOUCHES ARE BEING PUT ON THE U. S. S. MEDUSA IN PREPARATION FOR COMMISSIONING IN JULY—THE CUPOLA STACK MAY BE NOTED NEAR THE MAIN STACK

output of 800 kilowatts. The complement of the vessel includes 24 officers and 434 enlisted men. Of the latter 160 are assigned as the repair force, in distinction from those who operate and repair the propelling machinery and auxiliaries of the ship. The repair force includes men of the following rates: Special mechanics, electricians, carpenters' mates, patternmakers, boilermakers, blacksmiths, molders, coppersmiths, painters and firemen. The latter serve as helpers. Twelve of the repair force are molders.

The repair shops include the following: Pipe shop, plating shop, sheet metal shop, optical shop, gyroscope repair shop, gyros being used in torpedoes and compasses, paint shop, blacksmith shop, boilermaker's shop, machine shop, sailmaker's shop, pattern shop, and foundry.

It would doubtless be of interest to the readers of IRON TRADE to have a complete description of this floating repair shop, but the writer will confine himself to describing only the foundry and its equipment.

The foundry of the MEDUSA covers a floor space 48 feet in a fore and aft direction and extends the full width of the ship, nearly 70 feet. It is two decks or about 20 feet high. The whole of the lower deck is used, while the upper deck is arranged as a gallery, extending around three sides. The total floor space available is thus nearly 5000 square feet. Besides these spaces a large storeroom is located two decks below and directly under the foundry to which access is had through a trunk 6 feet square. Figs. 2 and 3 show the floor plans of the foundry.

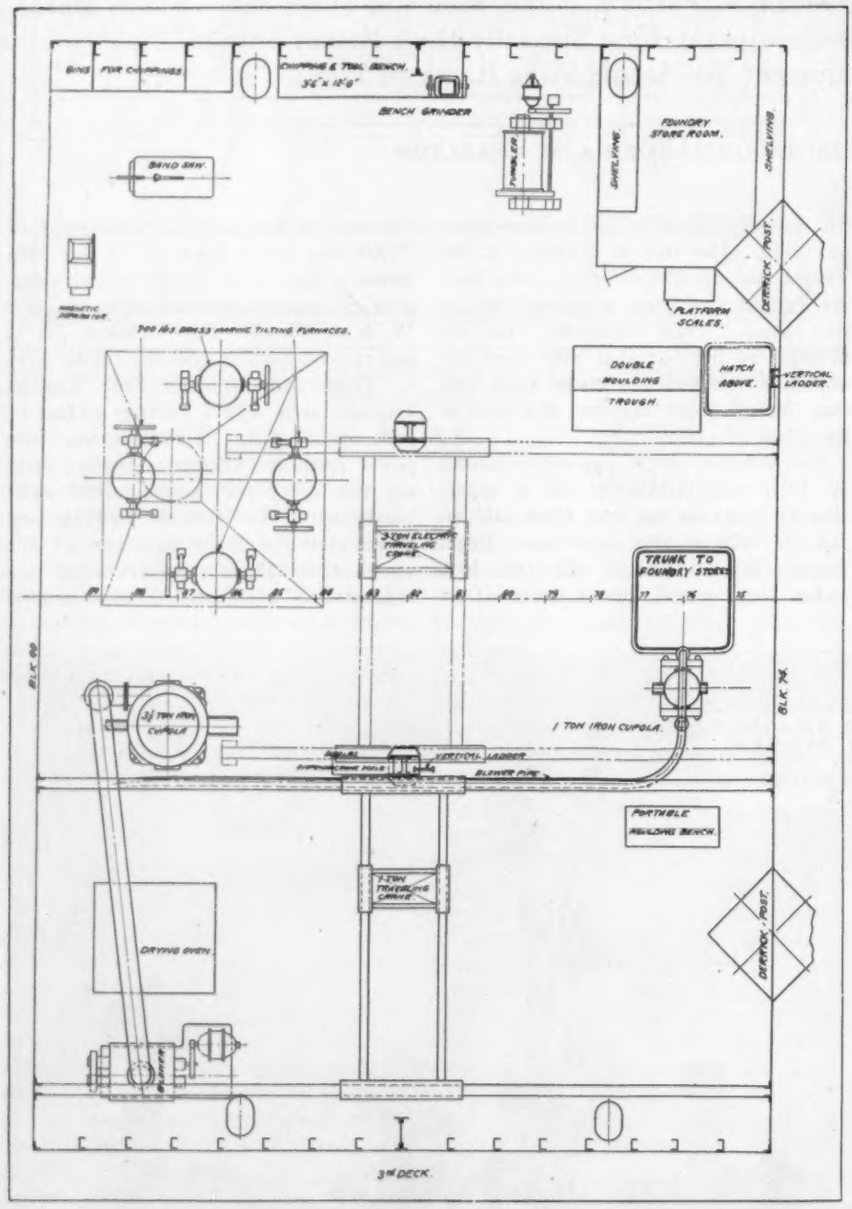


FIG. 2—ARRANGEMENT OF EQUIPMENT ON THE MAIN FLOOR OF THE FOUNDRY—SUPPLIES ARE KEPT BELOW THIS DECK AND BROUGHT UP BY A CRANE THROUGH THE HATCH SHOWN AT THE RIGHT

The melting equipment consists of a 3½ and a 1-ton cupola, and four 700 pound, brass, marine, oil-burning, tilting, crucible furnaces, all located on the third deck. The cupolas were built by the Whiting Corp., Harvey, Ill. Both cupolas are installed on the lower or third deck. The 3½-ton cupolas with its stack is some 60 feet high as the stack is brought high enough above the upper deck for the gases to blow clear of the personnel on the topside. The charging door for this cupola is 12½ feet above the bottom of the foundations so that the upper deck or gallery of the foundry may be used as a charging platform. The cupola and stack are well secured with holding down bolts and guys so that when the ship meets with heavy weather the cupola and stack will not get adrift.

The 1-ton cupola is mounted on trunnions and has no air chamber, the air from the blast pipes entering through the trunnions. There is no charging door, the cupola being charged at the top. The diameter of the shell is 27 inches and the overall height is 10 feet. The cupola may be turned to a horizontal position for cleaning and relining when necessary. No stack is provided, the gases escaping through the hatches in the main deck of the vessel, under which this cupola is placed.

The brass melting furnaces were built by the Monarch Engineering & Mfg. Co., Baltimore. They are grouped together on the third deck with a hood provided for collecting the gases. This hood in turn has an outlet into a stack which discharges above the decks. The stacks for the cupola and for the brass furnaces may be seen in Fig. 1 near the main stack.

Air for the cupolas and the brass furnaces is supplied by a low pressure blower made by the P. H. & F. M. Roots Co., Connersville, Ind., which delivers 3200 cubic feet of free air per minute against a pressure of 16 ounces. The blower is driven through gearing by a constant speed specially designed motor, built and installed by the General Electric Co., Schenectady, N. Y. Blower and motor are on the same cast iron foundation. This blower supplies air to the two cupolas and to the four brass furnaces, the air ducts being fitted with dampers to close off the discharge to apparatus not in use.

Electric Oven Heating

On this same deck is a mold drying oven, 7 x 7 feet 10 inches x 7 feet 6 inches high. It was built by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., and is suitable for temperatures up to 450 degrees Fahr. It is

made of galvanized sheet iron lined with 4 inches of insulating material, which is in turn covered with galvanized sheet iron. Double doors are provided on the long side. On each side of the oven are five heaters made of nichrome wire wound on fire clay insulators. Each heater takes 2.5 kilowatts, so that the power input in the oven is 25 kilowatts. The heaters are of the open-core type with a space between the side wall and the protecting screen giving rapid circulation of air. Rails and a truck are used for handling molds into and out of the oven. On top of the oven a 1/6 horsepower, motor-driven blower is mounted for exhausting fumes and gases from the oven. The electric equipment supplied includes a control panel with magnetic contactors and a motor operated snap switch, an electric contact control thermostat, a graphic recording thermometer, a push button switch and a door cut-out switch. This equipment allows the temperature desired to be maintained constantly. A 30 x 36-inch tumbling mill made by the Whiting Corp. is installed for cleaning the castings. This is driven by an electric motor, the tumbler being geared down to the proper speed.

General Equipment Is Adequate

The equipment for separating and stowing scrap metal and chippings is located in the port after corner of the third deck. A magnetic separator with a capacity of 500 pounds per hour, and an 18-inch metal band saw are installed near the scrap metal bins. A chipping and tool bench on which is mounted a 2 x 16-inch double bench grinder, motor driven also is provided. A foundry storeroom on this deck provides storage for small foundry tools and stores kept there for issue. A 2000-pound platform scale, a double molding trough, a portable molding bench and a 180-pound anvil complete the equipment on this deck.

Two cranes are installed to handle material about the molding floor. The larger of the two is a 3-ton capacity made by the Pawling & Harnischfeger Co., Milwaukee and is electric throughout. The second deck is cut away for about 10 feet on each side of the center line, and the crane trolley tracks are installed on the sides of the opening giving the crane a span of 18 feet. The trolley tracks are about 16 feet above the molding floor level. The arrangement to prevent the crane from taking charge in a seaway, when unexpected motion of the bridge or trolley might be dangerous to the personnel of the foundry is a special feature. The bridge truck wheels are bronze bushed and fitted free on the axle, while the truck gears are keyed to the axle and engage with steel racks one on each side of the span. The trolley drive is similar, the truck wheels being loose on the axle, while the gear wheels are keyed to the axle and engaged with racks attached to each bridge girder. Both the trolley drive and the bridge drive motors are provided with powerful magnetic clam shell brakes capable of producing a holding power as great as the maximum torque of the motors. The motors are all direct current being of 6, 6 and 1 horsepower for the hoist, bridge and trolley respectively. All are arranged for floor control. Under full load, the hoist motor has a speed of 17 feet per minute, the bridge of 275 feet per minute and the trolley of 100 feet per minute. At light loads, these speeds are raised to 40, 325 and 150 feet per minute respectively. As may be seen from the floor plan of the third deck, Fig. 3, the 3-ton crane may serve both cupolas and the four brass furnaces, while the 40-foot hoist enables it to raise stores from the storeroom two decks below through the 6 x 6-foot hatch in the forward end of the foundry. An 8000-pound crane scale is provided for use with this crane to measure material.

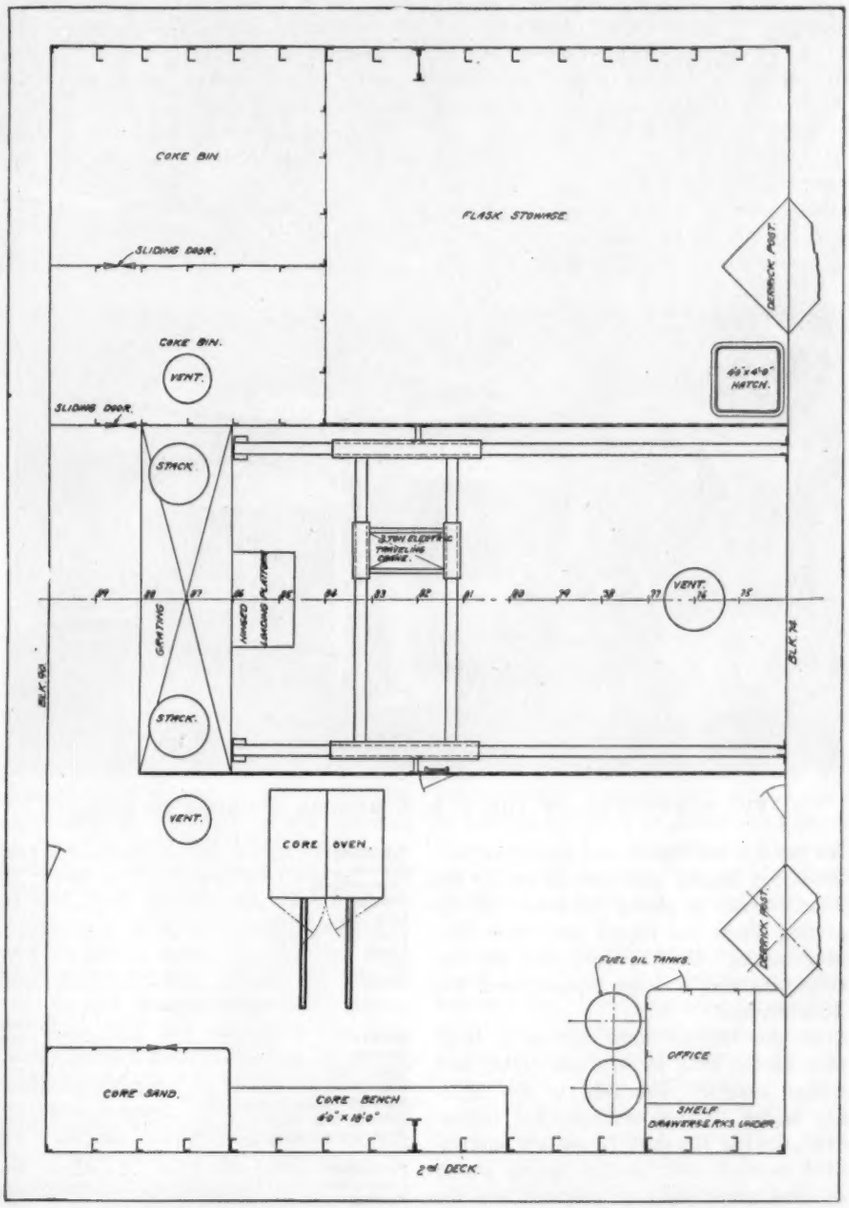


FIG. 3—ARRANGEMENT OF THE UPPER DECK LEVEL OF THE FOUNDRY—THE LOADING PLATFORM FOR THE 3½-TON CUPOLA IS LOCATED ON THIS DECK—PART OF THE EQUIPMENT IS KEPT ON THIS DECK

Underneath the second deck on the starboard side is mounted the 1-ton traveling crane manufactured by the J. C. Busch Co., Milwaukee. This crane has power for hoist only, the movement in the fore and aft and thwartship directions being controlled by hand. The motor has pendants for floor control and has a hoisting speed of 33 feet per minute at full load. The crane has a span

of 18 feet 11 inches and a hoist of 12 feet. This crane is used for handling molds in and out of the drying oven, empty ladles, flasks, etc.

The second deck is practically a gallery around the molding floor. The foundry office is on this deck where records and blueprints are filed, and the necessary paper work of the foundry carried on. Two, 250-gallon, oil tanks are installed alongside the office for supplying oil to the brass furnaces. Farther aft on this side of the deck is the core equipment with the core sand, core bench, and core oven adjacent to each other. The core oven is identical with the drying oven except that adjustable and removable shelves are provided in the upper part for holding small cores.

Amidships is the charging platform for the 3½-ton cupola and the brass furnaces. A loading platform served by the 3-ton crane is placed forward of the grating about the cupola and brass furnace stacks. On the port side are the coke bins and a large compartment for flask storage.

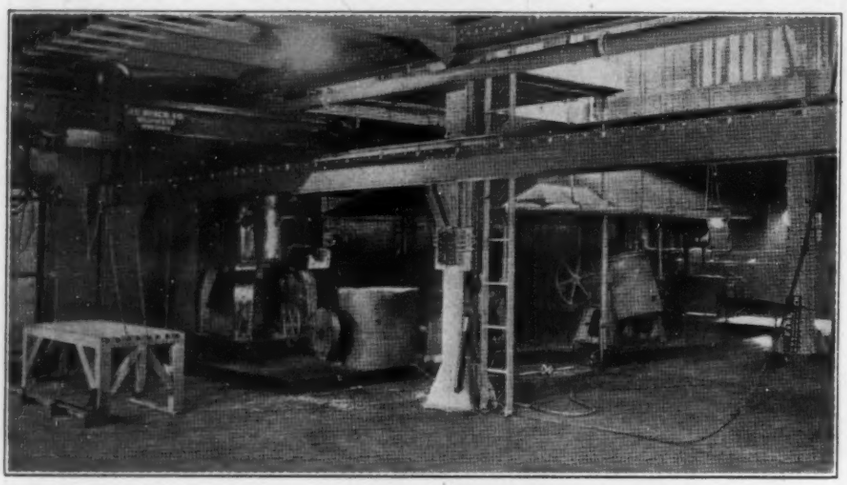


FIG. 4—FOUNDRY ON THE U. S. S. MEDUSA LOOKING TO PORT

As the foundry must operate a large part of the time by artificial light, particular attention was paid to the lighting layout. Large hemispherical reflectors carrying 100-watt lamps are distributed through the foundry spaces placed so that ample light is provided for the various operations. The total electric demand of the lighting, heating and motor driven apparatus is about 90 kilowatts. Pneumatic lines are brought into the foundry from the air compressors for use with various air tools.

In addition to the equipment mentioned above, the following accessories and tools are provided: Two sets of crucibles for each brass furnace; brass pouring ladles, 60 to 200 pounds; lifting tongs, pouring shanks, hand ladles, skimming ladles, etc.; three geared crane ladles, 6000, 3000, and 1000 pounds capacities; chipping vise and hammers; pneumatic tools; four sets of brass molders hand tools; four sets of iron molders hand tools; two sets of core makers tools; thirty-six flasks ranging in size from 6 x 12 x 16 inches to 10 x 24 x 48 inches.

The necessary raw materials for use in the foundry must, of course, be carried aboard in such quantities as will last until the vessel may reach a base where supplies may be replenished. In ordinary times a six months allowance is usually kept, but for an extended cruise or in war time, the storerooms are filled to capacity.

The six months allowance of foundry stores for the MEDUSA includes the following:

Metal, Ingots or Pig

	Pounds
Aluminum	500
Antifriction metal	1,000
Antimony	1,000
Bronze	10,000
Composition	10,000
Copper	20,000
Iron No. 1 pig	50,000
Iron No. 2 pig	50,000
Lead	2,000
Tin	2,000
Zinc	1,000

General Supplies

	Pounds
Borax	1,000
Gravel	10,000
Clay, fire	10,000
Coke	40,000
Facing, silica wash	500
Facing, sea coal	1,000
Facing, plumbago	300
Flour	200
Fluorspar	300
Limestone	1,000
Parting	500
Sand, carborundum	1,000
Sand, Jersey	40,000
Sand, Jersey coarse	20,000
Sand, beach	1,000
Sodium silicate	40,000
Sodium silicate	100
Molasses	50 Gallons
Tapers	50
Bricks	1,500

Although not directly a part of the foundry the large pattern shop installed on the vessel should be mentioned, as the success of the foundry in a large measure is dependent on it. The pattern shop is on the second deck immediately abaft the gallery of the foundry. The following tools are installed:

One 30-inch surfacer.
One 26-inch universal saw table.
One 24-inch jointer.
One 24-inch x 8-foot bed lathe.
One 30 x 60-inch x 6½-foot gap lathe, 7-foot 4-inch swing.
One 30-inch sanding machine.
One 38-inch band saw.
One motiser and borer.
One oilstone grinder.
Two 2 x 12-inch double bench grinders.
Two 8-inch bench jointers.
One 15-inch portable floor trimmer.
Seven pattern makers vises.
Two 8½-inch bench hand trimmer.
One double spindle shaper 42 x 52-inch table.
Two 2 quart electric glue pots.

All the power machines are driven by direct connected electric motors.

With the above equipment, the MEDUSA, probably the largest foundry afloat, may turn out castings for almost any repair job aboard our warships, with exception of the large main propelling engine castings. The MEDUSA shortly will take her place as repair ship for the battle fleet and as such will be stationed in the Pacific, replacing the PROMETHEUS which is going out of commission.

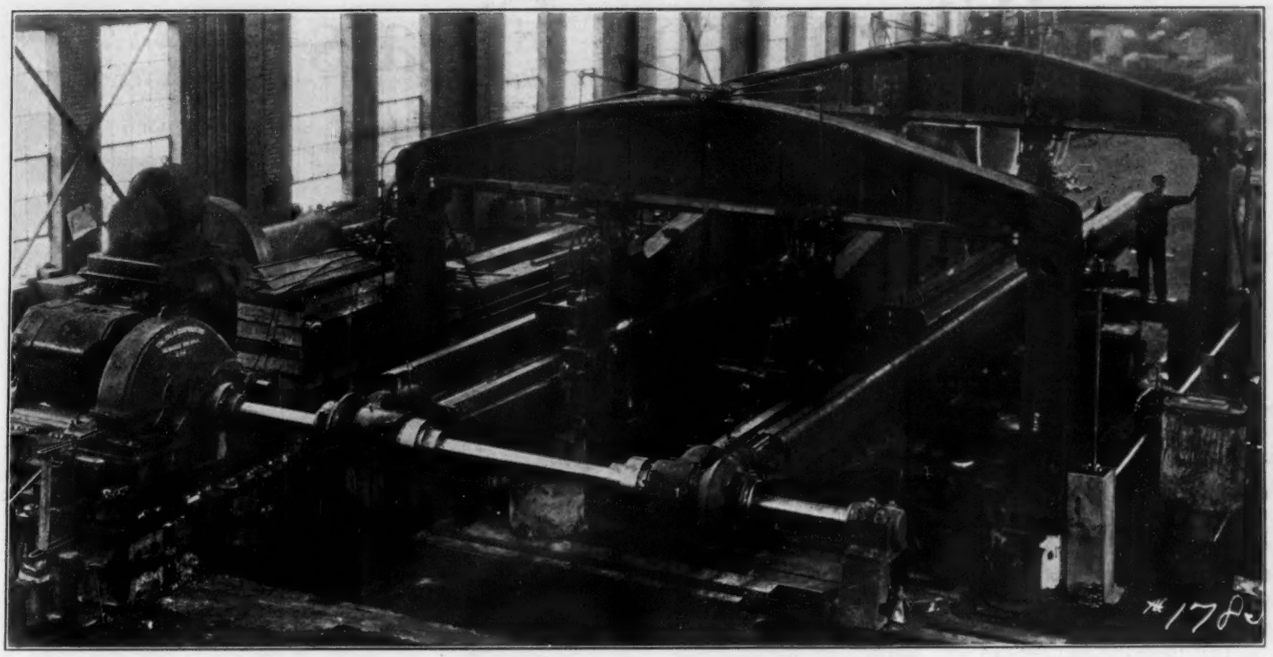
Designs Steel Frog

After conferring with a number of practical coal mine superintendents and devoting several months to the completion of the design, L. A. Green, 1113 First National bank building, Pittsburgh, has successfully placed upon the market a titanium alloy steel frog, which compares favorably with the manganese steel frogs used on standard gage railroads. This frog is cast in one piece and no rivets or bolts are used in its construction. Splice bars are not necessary since the splice bar is a part of the frog itself, which merely is spiked to the ties. Bolts and lock washers are furnished so that the rail can be bolted to the frog, thereby increasing rigidity.

Studies Nickel Plating

The study of the protective value of nickel plating on iron and steel is being continued by the bureau of standards, Washington. The indications are that it is extremely difficult to secure impervious deposits of nickel on iron and steel. It appears probable that some of the results of others in which high resistance in the salt-spray test was obtained, are accounted for by the presence of buffing grease in the pores of the nickel deposit.

All boilers at the blast furnace department, Hamilton works, Steel Company of Canada, Ltd., Hamilton, Ont., have been equipped with pressure gage burners of the Steinhardt type for burning surplus blast furnace gas.



This machine planes and upsets the edges of steel plates which are to be curved and fabricated into lock bar pipe. Its operation is rapid

Planes Steel Plates for Pipe Making

LOCK bar pipe, which derives its name from the lock bar which locks the plates together to form the pipe, is made from steel plates usually in 30-foot lengths. The edges of the plates after being planed are upset by means of rollers, following which the plates bent to the proper radius and the edges joined by the specially rolled lock bar to make a tight joint. For planing and upsetting the edges of the plates in the manufacture of this type of pipe, the Riter-Conley Co. recently has installed in its Leetsdale, Pa., plant an interesting, specially designed machine.

This machine, built by the Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., is shown in the accompanying illustration.

It consists essentially of two main beds of 45-foot length carrying the lead screws and carriages. Each side of these beds is formed into a beam on which the plates rest. Above these beams are supported two heavy clamping beams of 32-foot length, which by means of hydraulic pressure of approximately 100,000 pounds at the ends of the beams, securely clamps the plates for the full length of the two edges that are to be planed and upset. In turn these clamping beams are supported by two overhead heavy cross beams resting on columns. The two lead screws are 6 inches in diameter, have triple threads, and are connected by bevel gears to a common drive shaft which a 200-horsepower motor drives through a reduction gear unit.

Each carriage is provided with a tool holder carrying six cutting tools and a holder for eight vertical upsetting rolls. In front of the carriage is placed a pushout bar by means of which the finished plate is pushed out of the machine and in the back of the carriage is placed a clamping device by the use of which the unfinished plates are gripped and moved into the machine. Plates vary in width from 30 inches to 12 feet, this necessitating that the main beds and clamping girders be adjustable to this extent. For this purpose, the main beds are placed on five shoe plates provided with T-slots on which they can slide and be bolted to after adjustment is made. The clamping beams have similar adjustment, but are supported and slide on the lower flange of the overhead crossbeams.

Adjust For Taper of Pipe

As the two edges of the plates used in lock bar pipe are not parallel due to the fact that one end of the finished pipe section must be of smaller diameter than the other end so that one section of pipe can fit into the other, the main beds and clamp girders must have individual adjustment at both ends. For this purpose the shaft driving the cross screws is provided with two jaw clutches, each one of which can be thrown in and operated individually, or both together.

The machine is of steel construction throughout since by actual tests it was found that to upset the edge of a ½-inch plate, a pressure of approximately 400,000 pounds was required. In addition to the side pressure on the main beds, there is considerable stress from the cutting tools. Sometimes it is necessary to remove as much as 2 inches of stock from each of the two edges, this being accomplished by the six cutting tools simultaneous with the upsetting operation.

Capacity of the machine is about three times that of a former machine but no larger operating crew is required since the entering and discharging of plates is done automatically on the return stroke of the carriages.

The speed of the carriage is from 25 to 35 feet per minute, depending upon the thickness of plates being upset. About 2¾ minutes is required to plane and upset a 30-foot plate, including the removal of the finished work and reloading of the machine. Plates enter the machine at one end, resting on a roller table and castors. Castors also are placed between the beds for support of the plates. After being finished, the plates are pushed out of the machine onto another roller table and from there removed by overhead magnet. For convenience of the operator, the carriage has been provided with a platform on which the operator can ride while supervising the various operations of the planer.

When Iron Floats—

Plenty of Water Is Needed

Supreme Court Decision Against Lowering Lake Levels Through Chicago Drainage Canal of Great Importance to Nation's Industries Depending on the Inland Waterway—Its Effect on Transportation of Ore, Coal, Stone and Grain

BY A. J. HAIN

JUST what does the United States Supreme Court decision pertaining to the Chicago drainage canal mean to the iron and steel industry?

That there is a connection is obvious from the array of interests reinforcing the government's case to enjoin the diversion of 10,000 cubic feet of water per second from the Great Lakes. Now that the court has decided with finality not more than 4167 cubic feet of water can be abstracted, without an order from the secretary of war, the significant features of the event may be summarized with some assurance that they are likely to be permanent.

The injunction is referred to as an "event" because the vessel interests of the Great Lakes have been fighting the diversion of water at Chicago for a score of years. Linked with those interests are some of the largest iron and steel producers in the country. News of the Supreme Court's decision last week was received by them as a victory of tremendous importance, won after a long, hard battle.

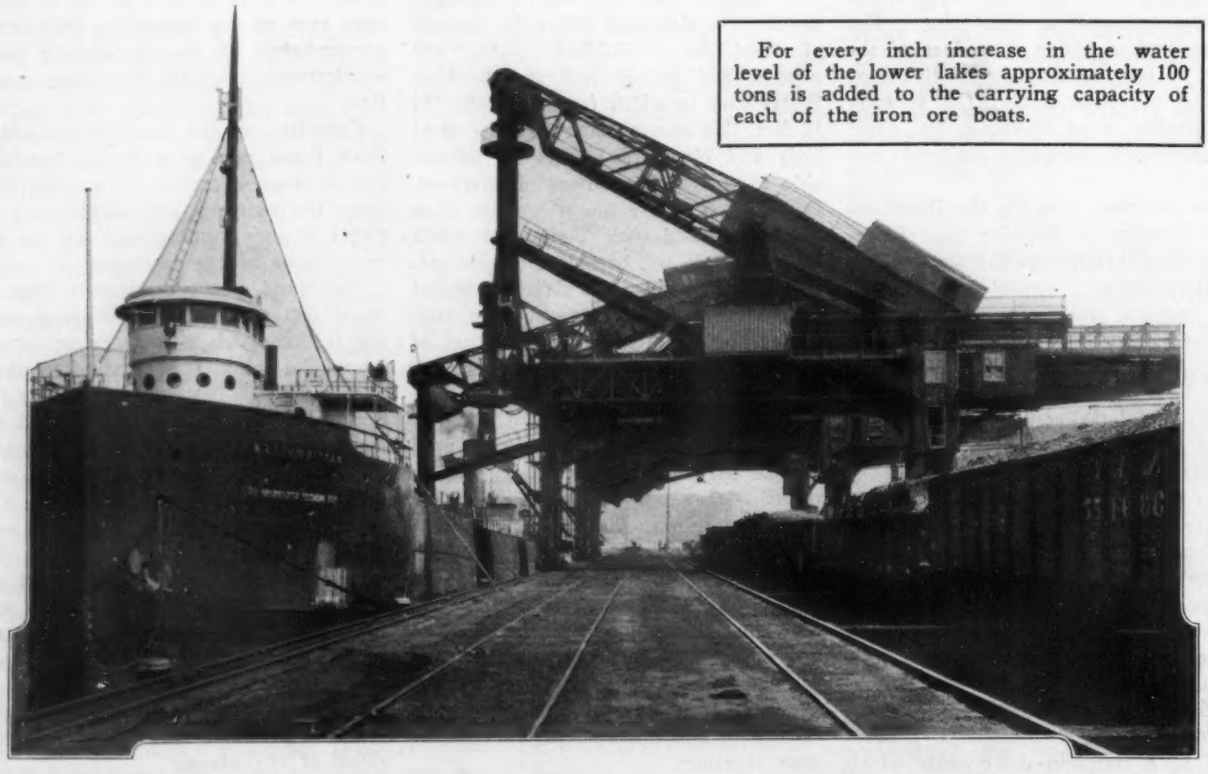
It is recognized that Chicago will continue the struggle for 10,000 feet per second, on the claim that this amount is necessary to the health of its millions of inhabitants. Further it is realized the secretary of war has the deciding power; and that congress may make new laws; but it is believed Chicago will have to take steps other than the lowering of lake levels to protect the health of its citizens. The Supreme Court's decision gives ground for such belief.

The sanitary district officials were found to be violating the order of the secretary of war, issued during the Taft administration, allowing the withdrawal of only 4167 cubic feet of water per second. It was mainly on that issue the case was decided, and there is nothing to bar Chicago from insistence on the issuance of another order by the present of secretary of war. Hearings will be held in Washington almost immediately, as the Supreme Court has made its injunction effective in 60 days.

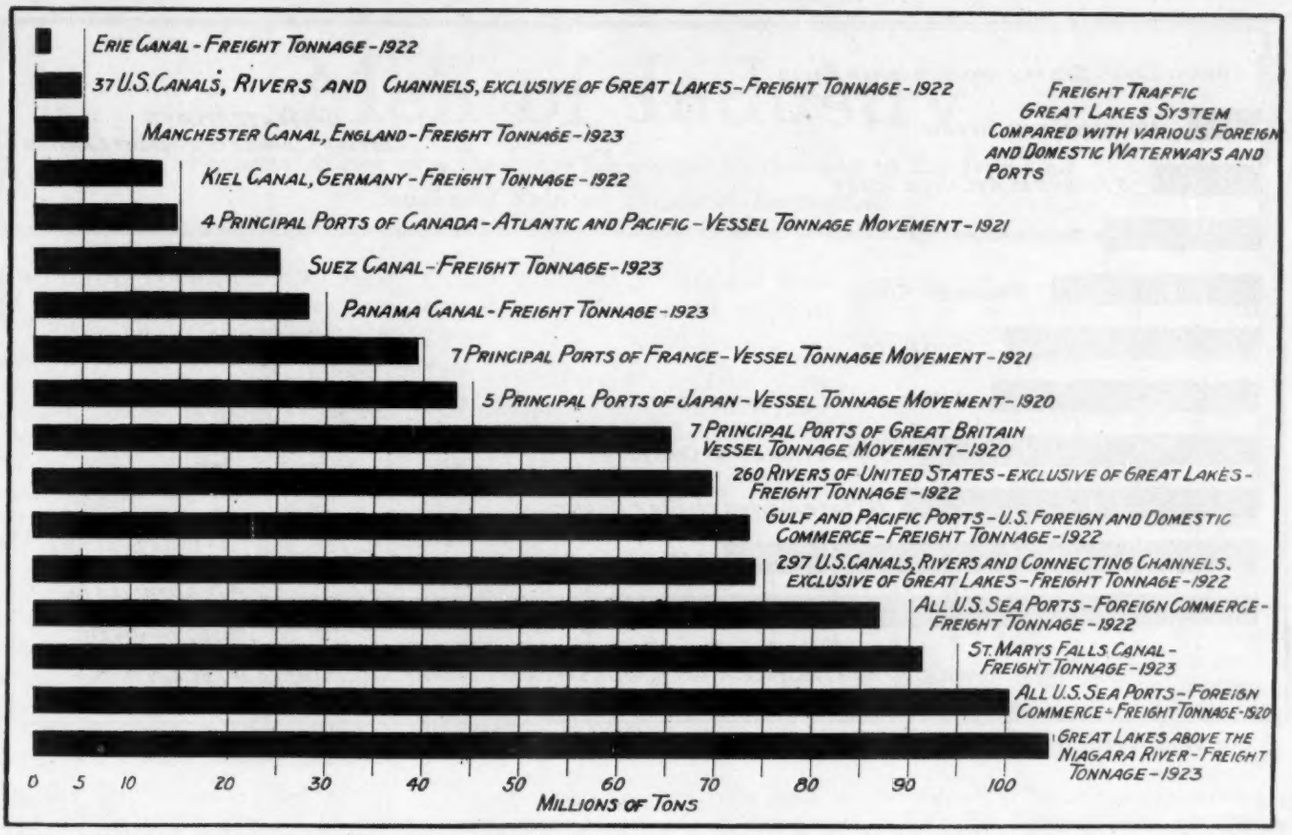
Vessel companies view the deflection at Chicago as a raid on their interests; and also point to the broader economic features involved.

The waterway provides low-cost transportation of essential materials over a route 1000 miles and is one of the mainstays of industrial enterprise. Destroy or detract from this natural advantage, they say, and all consumers of iron and steel, coal, grain and other commodities will suffer the consequence. As they have many millions of dollars invested, it is natural that they argue from this standpoint.

Because they are unable to load their vessels to full capacity they estimate their loss in revenue as $3,000,000 to $4,000,000 annually. They claim such a loss has been incurred for the last ten years



For every inch increase in the water level of the lower lakes approximately 100 tons is added to the carrying capacity of each of the iron ore boats.


Freight Traffic
Great Lakes System
Compared with various Foreign
and Domestic Waterways and
Ports
Erie Canal - Freight Tonnage - 1922
37 U.S. Canals, Rivers and Channels, exclusive of Great Lakes - Freight Tonnage - 1922
Manchester Canal, England - Freight Tonnage - 1923
Kiel Canal, Germany - Freight Tonnage - 1922
4 Principal Ports of Canada - Atlantic and Pacific - Vessel Tonnage Movement - 1921
Suez Canal - Freight Tonnage - 1923
Panama Canal - Freight Tonnage - 1923
7 Principal Ports of France - Vessel Tonnage Movement - 1921
5 Principal Ports of Japan - Vessel Tonnage Movement - 1920
7 Principal Ports of Great Britain
Vessel Tonnage Movement - 1920
260 Rivers of United States - exclusive of Great Lakes -
Freight Tonnage - 1922
Gulf and Pacific Ports - U.S. Foreign and Domestic
Commerce - Freight Tonnage - 1922
297 U.S. Canals, Rivers and Connecting Channels,
exclusive of Great Lakes - Freight Tonnage - 1922
All U.S. Sea Ports - Foreign Commerce -
Freight Tonnage - 1922
St. Marys Falls Canal -
Freight Tonnage - 1923
All U.S. Sea Ports - Foreign
Commerce - Freight Tonnage - 1920
Great Lakes above the
Niagara River - Freight
Tonnage - 1923
0 5 10 20 30 40 50 60 70 80 90 100
Millions of Tons

HOW FREIGHT TRAFFIC ON THE GREAT LAKES COMPARES WITH IMPORTANT WATERWAYS, GROUPS OF PORTS, LEADING CANALS AND WITH THE ENTIRE FOREIGN COMMERCE OF THE UNITED STATES

or more. Furthermore, they say that if Chicago should immediately reduce the amount of water it diverts, from 10,000 cubic feet per second to 4167 feet, it will take years for the Great Lakes to recoup the loss of 6 inches of water incurred by reason of the drainage canal. Full replenishment through the natural sources would extend ten years into the future, and meanwhile they would continue to sustain a loss.

Not only this, but an additional loss is represented in the damage to vessels due to low stages of water. The number of accidents ascribed to this source has been increasing in recent years. Vessels run aground in shoal waters, despite the vigilance exercised in determining and reporting the levels at the principal passageways.

Draft Determines Exact Capacity

The total trip capacity of the vessels in the iron ore trade on the Great Lakes is 3,116,300 tons. The vessels have such capacity when operating on an average draft of approximaely 19 feet 8 inches. Iron ore boats when loaded to this capacity are only about two-thirds full. Capacity increases proportionately as draft deepens, that is to a certain point depending on limitations of size and structure of the vessel. As capacity is gained, revenue advances; therefore revenue depends to a large extent on the depth of the water in which the vessels may operate. The lower the water, the more trips are necessary to carry the season's cargo of ore, coal, stone and grain.

One of the principal advantages of increasing the draft applies to the haulage of ore. The coal movement up the lakes amounts to about 50 per cent, in tonnage, of the down shipment of ore. Coal boats manage to load practically full, but with increased draft and more careful trimming, capacity also would show considerable increase.

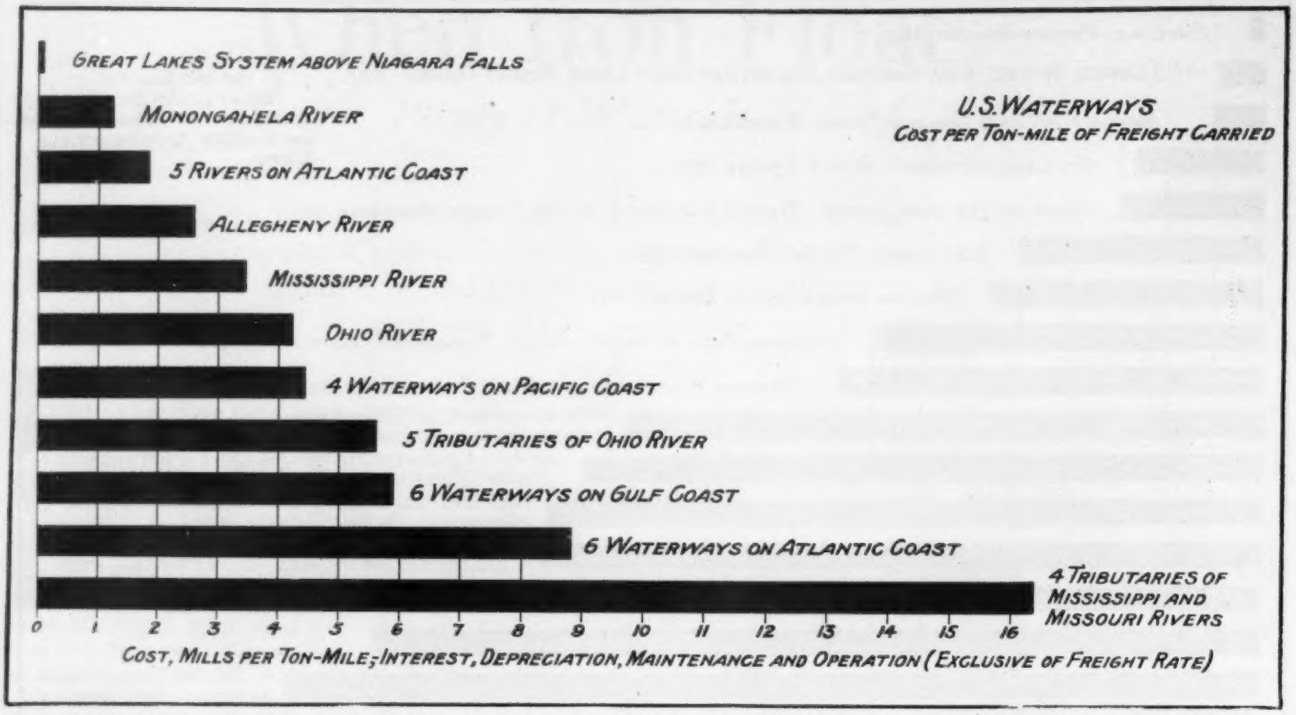
Many of the largest iron ore vessels return north without any cargo. The Steel corporation's boats carry very little if any coal. One reason for this is the trip can be made in less time, and the advantage thus gained more than offsets the revenue that would be obtained by delaying for coal. Also, coal rates average 40 to 45 cents, and ore rates average about 68 cents. The smaller boats obtain the coal carrying business.

For every inch added to the draft of water in the lower lakes the trip capacity of a 10,000-ton ore boat is increased approximately 100 tons. Conservatively stated, if the vessel could have 6 inches more water, representing the total withdrawn at Chicago, it could load 500 more tons of ore. This would mean an increase of about 5 per cent in the trip capacity of the ore fleet, or 155,000 tons over and above the present 3,116,300 tons capacity.

The number of trips made with ore average about 20 in a season. Additional capacity for such a period would be 3,100,000 tons. The average rate per ton of ore paid to the ore carriers in 1924 was 68 cents, calculated from actual shipments from the various ports. On this basis the increase in carrying capacity would mean an additional revenue of $2,108,000. This assumes a normal shipment, whereas in 1924 the movement was only two-thirds of that. Total increase in revenue depends on tonnage handled. A simpler way for grasping the significance of increased draft for lake vessels is by recalling that every inch adds about 1 per cent to operating revenue.

Chicago Argument

Vessels interests estimate a combined revenue increase for iron ore, coal stone grain and other commodities of $3,000,000 to $4,000,000 in a normal year. This assumes that practically all of the withdrawal of water at Chicago cease. If the amount is to be reduced from 10,000 cubic feet per second to 4167 cubic feet the gain in revenue would be only a little over half of the foregoing estimate. Some of the Chicago advocates also point out that the depth of water is ample for all the


U.S. WATERWAYS
COST PER TON-MILE OF FREIGHT CARRIED
GREAT LAKES SYSTEM ABOVE NIAGARA FALLS
MONONGAHELA RIVER
5 RIVERS ON ATLANTIC COAST
ALLEGHENY RIVER
MISSISSIPPI RIVER
OHIO RIVER
4 WATERWAYS ON PACIFIC COAST
5 TRIBUTARIES OF OHIO RIVER
6 WATERWAYS ON GULF COAST
6 WATERWAYS ON ATLANTIC COAST
4 TRIBUTARIES OF MISSISSIPPI AND MISSOURI RIVERS
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
COST, MILLS PER TON-MILE; INTEREST, DEPRECIATION, MAINTENANCE AND OPERATION (EXCLUSIVE OF FREIGHT RATE)

COMPARATIVE COST PER TON MILE OF FREIGHT CARRIED ON THE PRINCIPAL WATERWAYS OF THIS COUNTRY

requirements of trade, a statement denied by the carriers.

In a brief filed with the Supreme Court, counsel for the Lake Carriers' association had this to say about the effect of deflection of the lake waters:

"There is also the vast loss and damage to some 106 improved harbors in the states fronting the Great Lakes and over 50 on the Canadian side—and to the country at large and its industrial business dependent on the Great Lakes route for the annual movement of more than 100,000,000 tons of raw materials and other commodities wherein the saving in freight rates compared with the cost of rail transportation, easily reaches or exceeds $250,000,000 every year."

President Livingstone of the Lake Carriers association in 1909 gave testimony that the direct yearly loss to vessels alone in freight earnings amounted easily to $500,000 per inch of reduced draft, which would be $4,000,000 for 6 inches, on the present basis of traffic.

The Lake Carriers association is a business league composed of members who own and operate ships on the Great Lakes. Vessel subsidiaries of iron ore, pig iron and steel, and coal interests are members of the association. The Pittsburgh Steamship Co., subsidiary of the United States Steel Corp., has 96 vessels with a trip capacity of 792,500 tons. Pickands, Mather & Co. have 50 ships with capacity of 407,400 tons. The M. A. Hanna Co. has 23 with 237,700 tons capacity. The Cleveland, Cliffs Iron Co. has 14 with 124,400 tons capacity. Vessel departments of a half dozen or more other iron and steel companies are noted in the list of those represented.

Four more vessels each of 12,000 tons now are being built, three of them will be in service by June, the fourth in August. The boats brought out recently are of this type, requiring deep draft for maximum efficiency. The full capacity of these boats cannot be attained on present draft; boats will not be built smaller because less water is to be released for their operation; that would be contrary to the spirit of development.

Provides Low-cost Haulage

The importance of the lake route, emphasized by the litigation over the Chicago canal, is indicated in many ways. While the haulage from the head of the lakes is 1000 miles, the rate on iron ore per ton, 83 cents as in 1924, is much less than for a rail haul of 125 to 150 miles. As an example, the rail rate on iron and steel between Cleveland and Youngstown, a distance of about 65 miles is $1.76, or more than 100 per cent greater than the cost of bringing the essential raw material from the head of the lakes. And of the lake transportation cost, the net amount paid to vessels in 1924 was 70 cents a ton, the remainder for dock handling.

The benefits of this most economical of all forms of transportation undoubtedly extend in this country to wherever iron and steel are consumed, to the Northwest where eastern coal is a necessity, and to the regions where where the Northwest's grain flows.

It has been computed that enough wheat to make a barrel of flour is carried 1000 miles for about 10 cents, less than the cost of a loaf of bread. A ton of coal is carried the same distance for 40 to 45 cents a ton, about what it costs to have it shoveled into the basement. This is a benefit to the country compared to which the matter of a slight increase in revenue by deeper loading of vessels is insignificant.

The impairment of one of the country's greatest natural resources, of immediate economic advantage, merely to lower the cost of sanitation at Chicago, something that may be accomplished scientifically by other means, would be a colossal mistake according to the interests arguing for the preservation of the lakes; an argument in which they have been joined by the federal government and the governments of all the states immediately affected.

In recognition of his invention of the Worthington-type locomotive feed water heater, Thomas C. McBride, Philadelphia manager of the Worthington Pump & Machinery Corp., New York, has been awarded the Edward Longstreth medal of the Franklin institute, Philadelphia. Mr. McBride has been experimenting with locomotive feed water heating since 1903 and evolved the basic principles of his present design in 1915. The first of these heaters was manufactured in 1917, and since that year their development has been steady.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

EUGENE COLFAX PECK, works manager of the Cleveland Twist Drill Co., Cleveland, has resigned after 25 years service with that organization. Mr. Peck was born Dec. 20, 1867, in Akron, O. He was apprenticed in the machinist trade from 1885 to 1889, and was a foreman in the Akron Iron Co., 1889 to 1891. He next was connected with the Diamond Drill Co. from 1891 to 1895 and for the following three years was with T. & B. Tool Co., Danbury, Conn. In 1898 Mr. Peck was with the Morse Twist Drill Co. The following two years he spent with the S. W. Card Co., Mansfield, Mass., as superintendent. He joined the Cleveland Twist Drill Co. in 1900 as designer and engineer, holding that position for four years. He was appointed superintendent in charge of works in 1904 and has maintained that capacity since. He is a director of that company, vice president of the General Supply Co., and is interested in other companies. Mr. Peck invented special automatic machinery for manufacture of twist drills and reamers. During the war he was a lieutenant colonel in the ordnance department. He is senior army representative on the National Screw Thread commission and is chairman of the standardization committee of the American Society of Mechanical Engineers. Besides being a member of the Mechanical Engineers, he is a member of the Society of Automotive Engineers, Electro-Chemical Society, Cleveland Engineering Society and others.

* * *

J. L. Price formerly connected with the Chicago Pneumatic Tool Co. as secretary and treasurer and director, has severed his connections with that organization to become vice president and general manager of the Bendix Corp. and president of the Bendix Brake Corp.

* * *

J. H. Frantz, vice president of the American Rolling Mill Co., Middletown, O., has been elected a director of the Pittsburgh, Cincinnati, Chicago & St. Louis Railroad Co., succeeding William H. Lee of St. Louis, retired because of advanced age.

* * *

Donald N. Watkins has resigned his position as superintendent of the blooming mills at the South Side plant of the Jones & Laughlin Steel Corp., Pittsburgh, and has joined the sales force of the General Refractories Co., in its Chicago office. Mr. Watkins was formerly editor of *Blast Furnace and Steel Plant.*

* * *

Harold K. Ferguson, president of the H. K. Ferguson Co., Cleveland, engineer and builder, was elected president of the Cleveland Safety council recently. E. E. Noble, general manager of the Cleveland Electric Illuminating Co. is the new treasurer.

* * *

Lawrence W. Wallace was elected president of the Eye Sight Conservation Council of America at the recent annual meeting of the council in New York. Mr. Wallace is executive secretary of the American Engineering council and as vice chairman directed the assay of waste made by the Hoover committee on the elimination of waste in industry.

* * *

John M. Read, formerly assistant general manager, has been appointed general manager of the works at Cumberland, Md., for the N. & G. Taylor Co., Philadelphia, manufacturer of tin plate. He succeeds L. Leslie Helmer who died recently. Mr. Read has been connected with the Taylor company for the past 15 years.

* * *

William J. Eberlien has been appointed district manager of the Williams Tool Corp., Erie, Pa., at its Chicago branch, 549 West Washington boulevard. He had been associated with the Greenfield Tap & Die Corp., Greenfield, Mass., having been in executive capacities there before being appointed branch manager at Chicago for the Greenfield company, which preceded his present position.

* * *

George S. Evans, for the past five years metallurgist and superintendent of all the foundries of the Griffin Wheel Co., Chicago, has resigned to go with the Mathieson Alkali Co. Mr. Evans will handle the Mathieson desulphurizing compound, on the proper use of which he holds the patent. Mr. Evans was with the Lenoir Car Co. prior to going with the Griffin company.

* * *

H. E. Cook, formerly assistant superintendent of the coke plant at Portsmouth, O., of the Portsmouth By-Product Coke Co., Columbus, O., has been promoted to superintendent, succeeding L. D. Huestis, general manager of the company. Mr. Cook has been assistant superintendent of the plant since the beginning of its operation in 1918. Mr. Huestis was elected also a member of the board of directors.

* * *

William P. Kirk for the past 18 years general manager of the Cincinnati offices of Niles Tool Works Co. and Pratt & Whitney Co. has been transferred to the New York office of the Niles-Bement-Pond Co. Mr. Kirk will be succeeded at Cincinnati by E. H. Gates, now in charge of the branch at Rochester, N. Y. Mr. Kirk will leave for his new post Jan. 15. On Jan. 9, Mr. Kirk was guest of honor at a dinner given by members of the metal trades group at the Cincinnati Business Men's club.

* * *

R. S. Murray, formerly assistant treasurer, has been appointed treasurer of the General Electric Co. and subsidiary companies to succeed Henry W. Darling whose resignation became effective Jan. 1. Mr. Murray joined the General Electric Co. at its Boston office in 1898 and later traveled for the company to Australia and South Africa. In 1903 he returned to Pittsfield, Mass., as treasurer of the Stanley Electric Co. He has been assistant treasurer at Schenectady since 1907.

* * *

L. J. Hewes, for eight years manager of the district office at Chicago of the Traylor Engineering & Mfg. Co., Allentown, Pa., has resigned from that company effective Jan. 1. For nearly 40 years Mr. Hewes had been actively identified with the design and sale of crushing and mining machinery.

Benard Haislip, for several years assistant to Mr. Hewes has been appointed district manager at Chicago to suceed him.

* * *

Gordon S. Rentschler, managing director of the Hooven, Owens, Rentschler Co., Hamilton, O., has been elected senior vice president of the National City Bank of New York. Although his new duties will mean that Mr. Rentschler will spend a great part of his time in New York he will retain his residence at Hamilton and also will continue his connection with the Hooven, Owens, Rentschler Co. Mr. Rentschler is 40 years old and has served since October 1923 as a director of the bank. He is the youngest director of the bank and also a trustee of Princeton university.

Exchange Data on Electric Furnace Operation

During the past year the Pittsburgh Electric Furnace Corp. has placed in operation a data exchange which has proved valuable to furnace users. Monthly reports on operating figures are received from the various companies using the equipment and every quarter a composite table is compiled listing the quarter's average figures from each plant. Separate composite tables are made up for each size of furnace and the user receives the composite table for the quarter applying to furnaces of the size or sizes he is operating. These tables have enabled furnace users to compare their operating economies with a number of other users of identical equipment. The plant name, of course, is not given, the various companies being listed under letters of the alphabet. The table is operated on a confidential basis, being available only to users of the particular size furnace covered by the table.

No attempt is made in the table to go into the question of cost of castings, the table covering such questions as kilowatt hour consumption per ton, electrode consumption, demand, tonnage output, maximum and minimum weight of castings poured and refractory life.

The net result of the introduction of these tables has been improved practice in a number of plants and to establish operations on a more uniform level.

The company recently contracted for its one hundredth furnace in the United States and Canada. In addition, it has installed four furnaces in Europe, one in China, one in South America, and one in Mexico. The company has also handled three installations of furnaces of special types in this country other than the standard steel and gray iron melting furnace which they manufacture. It is significant that the past year's business included a number of furnaces going into the gray iron and malleable iron fields, where electric furnaces are comparatively new.

Convention Calendar

Jan. 15-16—American Society for Steel Treating. Winter sectional meeting, Sinton hotel, Cincinnati. W. H. Eisenman, 4600 Prospect avenue, Cleveland, is secretary.

Jan. 22-24—Gas Products association. Mid-winter convention at Hotel Sherman, Chicago. Charles T. Allen, 140 South Dearborn street, Chicago, is secretary.

Jan. 26—Compressed Gas Manufacturers' association. Convention at Hotel Astor, New York. John H. Luening, 120 West Forty-second street, New York, is secretary.

Jan. 28-30—American Management association. Annual convention at Hotel Astor, New York. W. J. Donald, 20 Vesey street, New York, is managing director.

Feb. 16-21—American Ceramic society. Annual meeting at Columbus, O. Ross C. Purdy, Lord Hall, Ohio State university, Columbus, O., is secretary.

Feb. 24-27—American Concrete institute. Annual meeting in Chicago. Harvey Whipple, 1807 Grand boulevard, is secretary.

Ingot Output

With 3,551,825 Tons in December Shows a Heavy Increase

Production of steel ingots continued its accelerated gain, when in December, the output gained 9.9 per cent over November, and made the fifth consecutive month to show improvement since the low point was passed last July. On the total monthly tonnage basis, the increase was the largest since that of August, however, December had 26 working days ac compared with 25 in November. According to statistics compiled by the American Iron and Steel institute from reports supplied by companies making 94.84 per cent of the country's total in 1923, the total December production aggregated 3,551,825 gross tons. As compared with the 3,107,226 tons of November, this was an increase of 444,599 tons or 14.3 per cent. Production of the reporting companies in December was 3,368,551 tons against 2,946,893 tons in November.

The approximate daily average of the country in December was 136,609 tons and was the highest since the 161,075-ton rate of March, the last month preceding the drop in operations. As compared with the 124,289-ton daily rate of November, this was a gain of 12,320 tons, or 9.9 per cent. Production in December represented 85 per cent of the March rate and was 90 per cent higher than the low point rate of 71,901 tons per day in July. On the basis of 311 working days in the year and a daily production of 136,609 tons for December, the annual indicated rate of production was 42,480,000 tons. The indicated rate for November was 38,650,000 tons.

With the year completed, the institute's statistics indicate an ingot production for 1924 of 36,645,444 gross tons, against a calculated production of 43,485,665 tons for 1924. The approximate daily production of the country for 1925 was 117,453 tons per day as compared with 139,825 tons per day during the year before.

Comparisons of steel ingot production by months for 1923 and 1924, as compiled by the institute, are shown in the accompanying table.

Announces 1925 Program

American Institute of the City of New York, now beginning its ninety-seventh year of continuous effort for American industry, announces through its Board of Trustees an activities program for 1925 that covers a wide range of work in the interest of the public. Many of the important problems of American industry, including government control of radio and the management of the patent office, are scheduled for investigation by committees of experts appointed by the institute. As a feature of its work in the interest of inventors and inventions the American institute will hold an exposition of inventions at the Engineering Societies building in New York.

Steel Ingot Production, 1923-24

94.84 Per Cent of Industry Reporting

Gross Tons

1923	Open-hearth	Bessemer	All other	Monthly production companies reporting	Calculated monthly production all companies	No. of working days	Approximate daily production all companies gross tons	Change in daily production per cent
Jan. ..	2,906,892	728,270	9,467	3,644,629	3,841,095	27	142,263	+ 7.7
Feb. ..	2,613,564	669,903	10,797	3,294,264	3,471,843	24	144,660	+ 1.7
Mar. .	3,046,309	799,525	12,841	3,858,675	4,066,680	27	150,618	+ 4.1
Apr. ..	2,974,579	772,485	13,933	3,760,997	3,963,736	25	158,549	+ 5.2
May ..	3,136,558	847,418	16,719	4,000,695	4,216,355	27	156,161	— 1.5
June.	2,821,239	737,845	15,483	3,574,567	3,767,256	26	144,894	— 7.2
July ..	2,658,449	680,884	11,496	3,350,829	3,531,458	25	141,258	— 2.5
Aug. .	2,796,370	701,059	9,326	3,506,755	3,695,788	27	136,881	— 3.1
Sept.	2,562,771	613,709	8,602	3,185,082	3,356,776	25	134,271	— 1.9
Oct. ..	2,735,513	649,452	9,163	3,394,128	3,577,091	27	132,486	— 1.3
Nov. ..	2,348,361	616,335	9,309	2,974,005	3,134,321	26	120,551	— 9.0
Dec. ..	2,135,898	570,004	10,912	2,716,814	2,863,266	25	114,531	— 5.0
Total	32,736,503	8,386,889	138,048	41,261,440	43,485,665	311	139,825	
1924								
Jan. ..	2,766,534	667,032	12,577	3,446,143	3,633,639	27	134,579	+17.5
Feb. ..	2,902,641	695,905	14,085	3,612,631	3,809,185	25	152,367	+13.2
Mar. ..	3,249,783	706,801	15,260	3,971,844	4,187,942	26	161,075	+ 5.7
Apr. ..	2,575,788	573,381	12,356	3,161,525	3,333,535	26	128,213	+20.4
May ..	2,060,896	425,099	6,648	2,492,643	2,628,261	27	97,343	—24.1
June ..	1,637,660	310,070	2,622	1,950,352	2,056,466	25	82,259	—15.5
July ..	1,525,912	241,880	5,162	1,772,954	1,869,416	26	71,901	—12.6
Aug. ..	2,042,820	361,781	5,759	2,410,360	2,541,501	26	97,750	+36.0
Sept. .	2,252,976	409,922	6,844	2,669,742	2,814,996	26	108,269	+10.7
Oct. ..	2,505,403	438,468	7,036	2,950,901	3,111,452	27	115,239	+ 6.4
Nov. ..	2,479,147	459,349	8,398	2,946,893	3,107,226	25	124,289	+ 7.8
Dec. ..	2,810,404	546,506	11,641	3,368,551	3,551,825	26	136,609	+ 9.9
Total .	28,809,964	5,836,194	108,381	34,754,539	36,645,444	312	117,453	.....

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

PRODUCTION of turbine pumps was scheduled to be started Jan. 1 in the $150,000 plant recently completed by the Union Iron Works, Los Angeles, for the Ulmer Machinery Co., Santa Ana, Calif. The new works consists of two steel frame buildings, the main manufacturing plant and a smaller foundry. The Santa Ana works is the second plant of the Ulmer company the other being located at Porterville, Calif., where the company was established several years ago by J. A. Ulmer, its president. J. L. Adrien is vice president and Earl Martin, secretary and treasurer. Los Angeles offices are at 322 South San Pedro street. The capacity of the Santa Ana plant will be 50 pumps per month at the start. It is reported that pig iron and sand used in the production of the turbine pumps by the Ulmer company are imported from Germany and Belgium.

* * *

STREET & KENT MFG. CO., manufacturer of brass goods in Chicago, has purchased the 2-story building at Clybourn and Wabansia avenues, that city, which it had leased since June, 1922. The plant is 110 x 124 feet, with a foundry in the rear.

* * *

A NEW building this year is the plan of the Wilcox Machinery Co., 209 Hickory street, Ravenna, O., recently incorporated for $20,000 to take over the business formerly operated as Wilcox & Lynn, general machinists. J. L. Slates is president, N. E. Slates is vice president, and C. F. Wilcox secretary and treasurer and manager.

* * *

RECENT contracts booked by the Cruse-Kemper Co., Ambler, Pa., engineer and contractor, include gas holders as follows: 200-ton for Havana, Cuba; 400-ton for Point Breeze, Philadelphia; 1250-ton for New Britain, Conn., and 2500-ton for Birmingham, Ala. S. E. Fairchild Jr., is president of the company.

* * *

DOUBLED plant capacity and equipment is expected to be required by the Highland Park Die Casting Co., 25 Glendale avenue, Detroit, within the year. The company recently was incorporated to expand the business of manufacturing a complete line of die castings, using a special method insuring low porosity. The company also is manufacturing a two-piece battery terminal. H. B. Rice is manager.

* * *

NEW shops of the R. D. Cole Mfg. Co., now under construction at Newnan, Ga., will be ready to start in operation shortly, according to R. D. Cole, president of the company. On completion of this unit, which occupies a site 60 x 300 feet, the company will have a total floor space of 180 x 500 feet, devoted entirely to foundry and machine shop work.

* * *

IMPROVEMENTS being made in the plant of the Liberty Foundry, Wauwatosa, Wis., consist of a 35 x 60-foot addition of brick and steel for cleaning and shipping departments. New equipment includes weighing apparatus, large compressor, rotary sand blast table, and other tools. The plant will be finished in six or eight weeks. William J. Grede is president of the company which makes high grade light gray iron castings and metal specialties.

* * *

OPERATIONS will begin not later than Feb. 1, 1925, at the new $150,000 foundry and shops of the Day-Evans Iron Works, Inc., now under construction near Knoxville, Tenn., it has been announced by A. W. Evans, one of the officials of the company, which was formed at Knoxville a few months ago with $200,000 capital. A. B. Day also is actively identified with the company. An industrial site of about 50 acres is controlled by the company, and additional units are to be later constructed. The plant will manufacture mine equipment, car wheels, etc.

* * *

NEW plants are imperative for the Western Machinery Co., Eighteenth and Alabama streets, San Francisco, since its merger with the Enterprise Engine Co., according to Williams Angus, general manager of the former company. A site for the new plant now is under contemplation. The buildings will cover about three acres of ground and will be of brick and steel construction, or concrete and steel. When the expansion program is started it will provide for modern layout and equipment in every particular. The Western company for many years has been building gasoline and distillate engines for heavy duty, stationary purposes, especially oil field, irrigation and mining work. The Enterprise company manufactured diesel engines.

* * *

A NEW concrete and steel plant, 60 x 140 feet, 4-story, is being erected at Riverside street and Hillside avenue, Oakville, Conn., for the Autoyre Co., Inc., that city, manufacturer of wire and metal novelties. Tracy Bros. Co., Waterbury, Conn., are contractors and Fletcher-Thompson, Inc., Bridgeport, is architect for the building, construction on which is under way. The company's main business is the manufacture of products or parts of products on automatic machinery. No additional equipment is to be purchased, but "any demonstrated improvement which can be shown to the company will receive consideration," according to E. R. Miner, of the advertising department. J. H. Cowles is president and R. G. Stewart secretary and treasurer.

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THE SOMERVILLE IRON WORKS has purchased 35,721 square feet of land from the trustees of central manufacturing district of Chicago, and upon it the district construction department is erecting a 2-story brick-and-mill type building with concrete floor, to be occupied, under lease, until Dec. 1, 1925, by National Cast Iron Pipe Co. as a warehouse for soil pipe and fittings. The site of the new structure is in the rear of 3637 South Ashland avenue. The building will contain 5500 square feet of floor space. The foundations are in and the brickwork started. The district construction department has all but completed the Illinois Shipping Container Co., building on Pershing road near Ashland avenue. Preparations have been made to start construction at once on the plant of the American Bolt Works, announced recently. This site is on Forty-seventh street near Turner avenue.

* * *

McWANE CAST IRON PIPE CO., 3600 North Eleventh street, Birmingham, Ala., which announced recently contemplated enlargment of its plant following an increase in capital stock, expects to invest about $100,000 in this project. Plans include the enlargement of the plant proper, the construction of a new machine shop, and a new sand storage warehouse. Considerable new machinery and equipment will be purchased for the shop.

Obituaries

LESLIE HELMER, general manager of the works at Cumberland, Md., for the N. & G. Taylor Co., Philadelphia, manufacturer of tin plate, died of typhoid fever at his residence there Dec. 24, aged 47 years. Mr. Helmer was born at Terre Haute, Ind., and following primary education was graduated from the Rose Polytechnic institute there in 1901. He was connected with the Pittsburgh Testing Laboratories afterward but in 1902 joined the Taylor organization as night chemist in the open-hearth department. In 1903 he was superintendent of the black plate department and in 1916 was appointed general manager. He was elected to the board of directors of the Taylor company in 1917 and at the same time was made assistant secretary and treasurer. He was a director of the First National bank of Cumberland and the Cumberland Savings bank. He was a member of the American Iron and Steel institute and was identified with many other social, professional and fraternal organizations.

* * *

C. W. Miller, vice president of the Rupp, Moore Co., Inc., Philadelphia, died Dec. 22.

* * *

Guy V. Cox, who has been with the Griffin Wheel Co., Chicago, for 31 years and has been superintendent of foundries for 10 years, died, Dec. 16.

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Ralph C. Richards, one of the organizers and fifth president of the National Safety Council, Chicago, died Jan. 3, at his home in Geneva, Ill., following a long illness.

* * *

Henry Thurston Smith, one of the founders of the United Wire & Supply Co., Pawtucket, R. I., died Jan. 5 at his home in North Kingston, R. I. Mr. Smith was 60 years old.

* * *

John L Billard, a leading manufacturer of Meriden, Conn, died recently at his home at the age of 92. He was for many years a director of Edward Miller Co., the Meriden Cutlery Co., and the Meriden Gas & Electric Co.

* * *

John Dayer, nationally known expert on stationary engine installation died at his home in Buffalo, N. Y., recently at the age 81. He had been connected with the Snow-Holly Steam Pump Works at Lockport, N. Y., for more than 30 years previous to its absorption by the Worthington Pump & Machinery Corp., New York.

* * *

Dennis F. Eagan, for 30 years with Henry E. Pridmore Inc., Chicago, manufacturer of foundry equipment, and who has been representative in New England, New York and Pennsylvania, died at Lynn, Mass., Dec. 31.

* * *

John C. Woodington, Evanston, Ill., president of the United States Threshing Machine Co., died Jan. 9, while on a business trip to Laporte, Ind. He was 49, and came to the United States from England in 1909.

* * *

James Morrison, a pioneer manufacturer of Toronto, Ont., died Jan. 6 at the age of 83 years. He had founded the James Morrison Brass Mfg. Co. about 50 years ago and had been prominent in industrial life in Toronto.

* * *

James Vincent Maher, founder and president of the Rosemary Coal Co., Cleveland, died at his home in that city Dec. 25. He was 60 years old and at one time had been general manager of the Pressed Steel Car Co., Pittsburgh.

* * *

Charles M. Whitmore, head of the production department of Crompton & Knowles Loom Works, Worcester, Mass., died recently at his home. Mr. Whitmore for many years was associated with the American Steel & Wire Co. at its Worcester plant.

* * *

Hugh Gregor Smith, 53 years old, superintendent of the slab mill of the Forged Steel Wheel Co., Butler, Pa., died in his home there Jan. 7. He was born in England and had been employed in McKeesport before coming to Butler 15 years ago.

* * *

Henry C. Fischer died at his home in Brooklyn, N. Y., Dec. 24, aged 66. Since his youth he had operated a gray iron foundry in the Greenpoint section of Brooklyn. He closed this a few years ago and retired from business. Mr. Fisher at one time was active in Republican politics.

* * *

John F. Brayer, chairman of the board of the Co-Operative Foundry Co., Rochester, N. Y., died recently at his home in that city. Mr. Brayer was born in 1852 and had for many years been connected with the stove manufacturing business in Rochester. He was prominent in civic affairs and formerly was treasuser of the Mechanics institute in Rochester.

* * *

Robert A. Bruce, former head of the research department of the Hydraulic Steel Co., Cleveland, died recently in New York, at the age of 53. Before the war he was associated with the Carnegie Steel Co., and during the war he served as supervisor of shell production with the rank of colonel. He was connected with the Quintell Co., New York, previous to his death.

* * *

Horace E. Smythe, aged 60, president of the S. R. Smythe Co., Inc. Pittsburgh, consulting engineer, died Jan. 9 in his home in that city. About a month ago Mr. Smythe suffered a stroke of paralysis and was recovering when pneumonia developed. Mr. Smythe was born at Dover, England, and was graduated from Oxford university. He came to Pittsburgh in 1886 and associated himself with his brother, the late Samuel R. Smythe. Upon the death of the latter, he became president of the company which had been incorporated.

* * *

James A. Brett, district manager of the Westinghouse Electric & Mfg. Co., at Cincinnati for 20 years and a pioneer in the electrical industry, died Jan. 8 at Hamilton in the Bermuda Islands. He went there about a month ago for a brief pleasure trip and shortly after his arrival suffered an attack of acute indigestion. Mr. Brett began his career with the Sprague Electric Co., Mt. Vernon, N. Y., where he was born. He gained prominence in the engineering field especially in electric railway construction.

* * *

J. C. Morrell, general superintendent of the Great Northern ore docks at Superior, Wis., died recently at Monrovia, Calif., his winter home, at the age of 59 years. He was born in England and came to American when 7. After working at ore docks at Marquette and Escanaba, he went to Superior and when the Great Northern established its docks at Allouez Bay, was placed in charge. He developed the system so that it now embraces four modern docks with a capacity of handling 16,000,000 tons of ore in a season.

Machinery Still Marks Time

Prospects for 1925 Business Good but Inquiries and Sales Do Not Support Cheerfulness—Heavy Railroad Lists Expected in Middle West—Automotive Industry Remains Inactive—Used Tool Sales Continue Fair—Crane Bookings Again Increase

RECOVERY in the machine tool market is awaited patiently by builders, dealers and equipment interests. Good prospects are plentiful and cheerfulness is the predominant tone of the market but sales and inquiries reflect little increase over the volume of business in December. Few large lists of tools are involved in present inquiries. It is too early for many actual sales on 1925 appropriations but a healthier volume of inquiry soon should follow the post-inventory and holiday period.

Crane builders again report good bookings during the past week. Inquiries indicate a better total in January than in December.

Westinghouse Electric & Mfg. Co. and General Electric Co. are out for first quarter requirements.

"A relatively low rate of demand for equipment of all sorts is quite normal for a revival stage in a business cycle such as we are passing through at this time," according to E. F. DuBrul, general manager of the National Machine Tool Builders' association, in his monthly review just issued. "Production has not yet reached the limit of equipment facilities, so users are not ordering very briskly. While orders for equipment have increased since the low rate of last summer, they are not yet so pressing as to indicate a shortage of equipment facilities relative to the demands for production. So the equipment companies still are able to supply with reasonable promptness."

Single Tools Constitute Major Activity

NEW YORK, Jan. 13.—While orders are still restricted, there has been a decided improvement in demand for machine tools during the past few days. No large lists are involved but specifications are more numerous and of greater scope. The inventory season has afforded prospective buyers an opportunity to analyze their requirements more fully and this likely is reflected in the present improvement in demand. Inventories in many cases have proved more favorable than expected.

A recent buyer is the Worthington Pump & Machinery Corp., Harrison, N. J., which has closed on at least a half dozen tools including a large radial drill, a horizontal boring machine a floor boring machine, a turret lathe, and, it is understood, a wheel press. The General Electric Co., Schenectady, N. Y., has issued a list of 10 or 15 machines for its various repair shops. The equipment includes grinders, drilling machines and engine lathes. No railroad demand of consequence is noted.

Improved inquiry is in evidence in the crane market also particularly in locomotive cranes.

Present Activity Is Low

CLEVELAND, Jan. 13.—Machine tool builders and dealers have passed through another dull weak. Inquiries and sales dropped below the December average. Inquiries continue to be rumored in plenty, but actual productive requests for machine tools are few. A healthy and cheerful tone dominates the market. One local builder has sold three machines for export to France, these going to an old customer. Railroad and automotive business continues lacking. Miscellaneous odds and ends are constituting the bulk of present business. The Nickel Plate is inquiring for one small tool, and other than the ever present New York Central list, no carrier business is pending.

Illinois Central List Compiled

CHICAGO, Jan. 13.—The Illinois Central railroad, with headquarters at 135 East Eleventh place is understood to be preparing a large inquiry for machine tools and other equipment for issuance about Feb. 1.

The P. B. Yates Co., Beloit, Wis., has purchased two grinders. The Nash Motors Co. is placing some hammers and trimming presses. Individual sales of one machinery house include a 25-inch shaper, a 16-inch shaper, two 3-foot sen-

Crane Awards and Inquiries of the Week

Orders Placed

25-ton electric gantry crane for the Pennsylvania railroad, for installation in Cincinnati, to the Whiting Corp.

25-ton locomotive crane with pile driver attachment for the Alabama State Dock Commission, to the American Hoist & Derrick Co.

25-ton used electric overhead crane for the Tompkins Kiel Marble Co., 505 Fifth avenue, New York to an unnamed seller.

25-ton electrically operated locomotive crane for the International Portland Cement Co., 342 Madison avenue, New York for installation at Norfolk, Va., to the Link-Belt Co.; the International Company also is understood to have awarded a 2½-yard grab bucket crane to an overhead crane builder.

22½-ton locomotive crane for the Standard Slag Co., to the Ohio Locomotive Crane Co.

15-ton handpower crane, 17-foot 6-inch span, for the Public Service Production Corp., Newark, N. J., to Alfred Box & Co.

10-ton caterpillar crane, 40-foot boom, for the Baker Construction Co., Great Neck, Long Island, to Philip T. King, 30 Church street, New York.

5-ton, electric crane, 40-foot span, for C. H. Masaland Sons, Philadelphia, to an eastern builder.

5-ton, 1-motor crane, 37-foot span, for the Gulf Refining Co., Jacksonville, Fla., for installation at Charlotte, N. C., to Alfred Box & Co.

3-ton double hook overhead crane, 25-foot span, for the American Tube & Stamping Co., Bridgeport, Conn., to an eastern builder.

1-ton electric trolley to the Washington Terminal Co., Washington, D. C., to an eastern builder.

Log rolling crane for the J. R. Buckwalter Lumber Co., Union, Miss., to the American Hoist & Derrick Co.

Railroad ditcher for the Alabama, Tennessee & Northern railroad, Mobile, Ala., to the American Hoist & Derrick Co.

Orders Pending

19 overhead cranes, offered for sale by the Monroe Warehouse Co., Rochester, N. Y.; 17 of these cranes are of 7½-ton capacity and 35-foot span, while two are of 15 tons capacity, 50-foot span. It is understood these cranes had been installed in plant of the Symington-Anderson Co., Rochester, N. Y.

Six 20-ton locomotive cranes for the Baltimore & Ohio railroad; inquiry expected to be revived in the near future.

120-ton electric crane for the plant of the Columbus Light & Power Co., Columbus, Ga.; Stone & Webster, engineers, expected to take action at once.

120-ton electric overhead crane and a gate hoist, both for installation in Minnesota, for the Phoenix Utility Co., 65 Broadway, New York; action expected shortly.

1½-yard grab bucket crane for the Southern railway, inquiry issued through the Foundation Co., 120 Liberty street, New York, general contractor; it is understood the crane is for the Carswell, Va., shops.

Small sized locomotive crane for the Anaconda Copper Mining Co., 25 Broadway, New York City; bids asked.

Other crane items appear on following page.

sitive radial drills and one lapping machine.

It is reported that the Commonwealth Edison Co. has deferred the purchase of equipment for which it inquired recently. The board of education is not expected to act for several weeks on the 24 lathes for the Tilden technical high school. With most machinery sellers in the Chicago district, January business so far has been lighter than December.

Good Prospects Feature Market

CINCINNATI, Jan. 13.—Good prospects for 1925 trade constitutes the chief feature in the machine tool market in his district. Increased industrial activity has developed in several localities since Jan. 1 and many attractive tool lists have been prepared and are expected to come out for figures before the end of this month. Sales the past week involved single units for the most part. Planers, boring mills, shapers and lathes figured in the week's transactions. The Cincinnati Planer Co. received an order for a 36-inch planer from the Kelly Press. New York, while the Power Mfg. Co., Marion, O., bought a new type planer. Business of machine shops has increased slightly since Jan. 1, and many of the manufacturers are of the opinion that their establishments will be on a full time basis before spring.

Reports from dealers of used machinery indicate that the total business closed during the past week was slightly less than that for the preceding week. The few sales being made are confined chiefly to small lots of tools. Inquiries being brought out also suffered a decline.

New England Reports Improvement

BOSTON, Jan. 13.—New England tool manufacturers report a decided improvement in orders during the past week, but their experience is not duplicated by dealers, who still have hopes of a large amount of business but relatively few actual orders. The business reported by the manufacturers comes mostly from other parts of the country. Detroit automobile manufacturers have been heavy buyers of tools in Connecticut during the past week. One Massachusetts manufacturer reports an increase in orders from the Far West. Sales of production tools have shown a gradual improvement since the first of the year.

At Boston the used tool dealers find business marking time. One such dealer reports orders to date in January practically on the level with those for the same period in December. Some eight or ten new tools have been placed during the week by Boston dealers, several to the textile trade, one to a paper manufacturer, and others to general machine shops.

Machinery Exports Gain

MACHINE tool and equipment exports showed an upward trend toward the end of 1924 as indicated in the following list of shipments as reported by the department of commerce for the month of October, the last compilation issued:

Countries	Lathes Dollars	Boring and drilling machine tools Dollars	Planes, shapers and slotters Dollars	Milling machines Dollars
Belgium	....	1,556	....	....
Czechoslovakia	....	4,213	....	9,653
Finland	2,376	....	....	....
France	6,057	124	8,731	14,090
Germany	2,355	2,900	....	....
Italy	....	....	....	4,179
Netherlands	....	120	....	....
Russia in Europe	18,160	....	....	10,046
Spain	4,270	6,936	....	11,143
Sweden	2,000	....	....	202
Switzerland	2,264	....	....	1,615
England	204	1,823	14,934	1,567
Canada	7,607	1,730	3,636	1,372
Costa Rica	574	....	....	....
Guatemala	2,010	....	....	....
Panama	23	....	....	....
Salvador	386	....	....	....
Mexico	....	186	....	....
Newfoundland and Labrador	7,583	....	....	....
Cuba	27,993	6,049	....	....
Brazil	....	17,498	....	....
Chile	4,230	4,423	....	....
Colombia	..	770	....	....
Paraguay	....	38	....	....
Venezuela	327	60	....	....
British India	....	2,213	....	....
China	....	....	221	....
Japan	14,349	15,218	2,490	5,873
Kwangtung	....	....	418	....
Australia	....	11,937	....	6,000
New Zealand	261	2,263	....	....
British South Africa	....	....	1,477	3,213
Total	103,029	80,057	31,907	68,953

Countries	Bending and power presses Dollars	Thread cutting and screw machines Dollars	Punching and shearing machines Dollars	Power hammers Dollars
France	158,824	1,318	886	16,545
Germany	2,435	....	....	....
Norway	....	....	....	300
Russia in Europe	....	....	....	1,911
Spain	....	169	....	....
Sweden	....	561	....	260
England	4,650	5,326	725	2,040
Canada	7,605	2,388	2,793	1,035
Mexico	168	670	....	925
Cuba	....	2,482	91	....
Haiti	....	....	110	....
Argentina	....	1,772	....	....
Brazil	....	....	....	2,206
Chile	....	671	....	....
Venezuela	....	195	....	....
British India	....	....	....	977
China	....	....	183	....
Japan	5,233	1,658	663	9,845
Persia	....	942	....	....
Australia	....	9,131	....	....
British South Africa	....	2,355	....	....
Egypt	....	....	635	....
Total	178,915	29,638	6,086	36,044

Buyers Procrastinate in Closing

PITTSBURGH, Jan. 13.—With plenty of machine tool inquiries before them, sellers are finding it difficult to bring customers to the closing point. There appears to be a tendency to withhold orders although this may be on account of inventory-taking and other activities attendant upon the first of the year. All are optimistic and count on better business for 1925, since many prospositions held up for two years or more now give promise of proceeding to completion. The National Tube Co., McKeesport, has added a number of smaller machine tools to its inquiry listed last week, making its total requirements about 18 or 20 items. The Westinghouse Electric & Mfg. Co.'s list involves a great many small tools, as noted a week ago, but the larger items include two boring mills radial drill, turret lathe, etc. The Carnegie Steel Co., is not proceeding with purchases as yet and the Patterson Foundry & Machinery Co., East Liverpool, O., will probably buy used equipment if the proper kind of machinery can be located. Typical sales of the week include a motor-driven lathe, a large motor-driven disk grinder, some woodworking machines, etc. Orders for repair parts are heavier than in many months past, indicating that shops are putting their equipment into shape for extensive operation. This latter also is true of crane parts, numerous cranes being repaired.

Crane inquiries continue to appear spasmodically, and occasionally orders are taken.

Crane Awards and Inquiries of the Week

Orders Placed

Two 10-ton cranes with 80-foot span for the California plant of the McClintic-Marshall Co., to the Shaw Electric Crane Works.

Two 5-ton cranes for the Pittsburgh Transformer Co. to the Northern Engineering Works.

Two cranes, one 50-ton with 10-ton auxiliary, and a 15-ton crane for the Pittsburgh Transformer Co., to the Cleveland Crane & Engineering Works.

Two cranes, including one 25-ton with 60-foot span and 5-ton auxiliary, and a 15-ton crane with 52-foot 6-inch span for the National Tube Co., Gary, Ind., to the Shaw Electric Crane Works.

Single Installations

Crane for the American Steel & Wire Co., Denora, Pa., to Morgan Engineering Works.

Orders Pending

Two special locomotive cranes for the Pennsylvania railroad at Yellow Creek, Pa.; bids being taken.

One crane with steam shovel for the George E. Woods Co., Inc., Pittsburgh; contractor who is razing the church at Smithfield street and Sixth avenue, Pittsburgh.

Other crane items appear on preceding page.

Recent Industrial Business Changes

THE Domhoff & Joyce Co., Cincinnati pig iron, coke and coal interest, has removed its St. Louis office from 800 Times building to 1304 Liberty Central Trust building, Broadway and Olive street. Stephen McGovern, Jr., has been appointed as St. Louis manager.

* * *

W. O. Blake and Dell S. Blake have opened a machine shop in Estherville, Iowa.

* * *

Hulst Staplin Lead Co., Chicago, has changed its name to the Hulst Lead Co.

* * *

U. T. Hungerford Brass & Copper Co., New York, has merged with the Hungerford Brass Corp.

* * *

Burge Machine Works, Chicago, has changed its name to the Burge Ice Machine Co.

* * *

The Williams Gauge Co., Pittsburgh, after Jan. 2 will be located at its new plant at 1620 Pennsylvania avenue, Northside, Pittsburgh.

* * *

The Hill & Griffith Co. announces the removal of its Chicago offices and manufacturing departments to its new location at 4608 West Sixteenth street, Chicago.

* * *

Stringer Cable Brake Co. is moving from High and Penn streets, Norristown, Pa., into larger quarters at Charlotte and Water streets, that city.

* * *

Maxon Premix Burner Co. announces the consolidation of the Maxon Premix Burner Co. and the Maxon Furnace & Engineering Co., the consolidated companies to be operated under the name of the Maxon Premix Burner Co., Muncie, Ind. Branch offices will be retained at Pittsburgh and Chicago and another opened in the East in the near future.

* * *

H. B. Tennison is to move his metal products plants from Congress avenue and St. Emanuel street, to a site at Hamilton street and Franklin avenue, Houston, Tex.

* * *

Curtis & Marble Machine Co., Worcester, Mass., manufacturer of textile mill machinery and equipment, is opening an office at Greenville, S. C., for handling its sales in the South.

* * *

Foote Bros. Gear & Machine Co., 215 North Curtis street, Chicago, has appointed Thrall Electric Co., Havana, Cuba, as exclusive representative on that island for its gear products and speed reducers.

* * *

The Painter-Bundy Tool Co. recently entered business in Wichita Falls, Tex., purchasing the plant and equipment of the W-R-B Co. Immediately production of rotary drilling tools was started.

* * *

Marine Junk Co., has established itself in its new quarters at 150 South Water street, Mobile, Ala. The company deals in waste materials and conducts a salvage business of all types. The company's yard and warehouse is at 101 Beauregard street.

* * *

Kaustine Co., Buffalo, N. Y., manufacturer of sanitary equipment etc., has moved its southern offices from Greenville, S. C., to 32 Carnegie Way, Atlanta. Warehouses in Atlanta are at 1000 Marietta street. Clyde Young is manager of the southern territory.

* * *

The Rosiclare Lead & Fluorspar Mining Co., Washington, producer of all grades of gravel, lump and ground fluorspar, from mines at Rosiclare, Ill., announces the appointment of Oglebay, Norton & Co., Cleveland, as general manager and exclusive sales agent, effective Jan. 1.

* * *

Edward T. Moore announces the opening of his office at 500 Cahill building, Syracuse, N. Y., for the general practice of consulting engineering and the manufacture of an electric power regulator. Mr. Moore will specialize in industrial plant problems and electric furnace installations.

New Construction and Enterprise

BIRMINGHAM, ALA.—Continental Gin Co. has awarded contracts to International Steel & Iron Co. for erecting a machine shop extension. H. K. Ferguson Co., Cleveland, is engineer.

CHAVIES, ALA.—Holdfast Brake & Implement Co. has been incorporated by J. D. Hall, J. R. Woodall and E. F. Dobbins.

SAN FRANCISCO—The Gay Engineering Co., 311 California street, plans constructing a plant costing about $50,000 for the manufacture of refrigerating machinery.

STAMFORD, CONN.—H. E. Verran Co. has awarded John W. Ferguson Co., Paterson, N. J., contract for plant enlargements.

ATLANTA, GA.—Atlanta Industrial Corp. has acquired the old plant of the Oliver Rim Co., near Camp Jessup, Ga., where it will convert the works into a machine shop for the manufacture of agricultural implements and tools. Josiah T. Rose is president and manager and Woods White, secretary and treasurer. Offices are in the Healey building.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

CHICAGO—C. W. Spring Co., 3021 South Michigan avenue, has awarded contracts to E. W. Sproul Co., 2001 West Pershing road, for a 1-story plant to cost about $25,000.

CHICAGO—Highway Steel Products Co., Twelfth and McKinley streets, has been incorporated for $20,000 to manufacture and deal in specialties and merchandise, by W. C. Burrell, S. C. Lawson and W. L. Backer.

CHICAGO—Benjamin Bortz, business manager for the Howard Terminal garage, 7632 North Paulina street, contemplates constructing a 1-story, 132 x 150-foot garage on North Ashland avenue.

CHICAGO—Henry Radio Corp. of America, 4510 Malden street, has been incorporated for $20,000 to manufacture and deal in electrical equipment, radio supplies, etc., by Charles F. Henry, John W. Jones and Walter Hamilton.

CHICAGO — Hudson Ross, Inc., 121 West Madison street, has been incorporated for $75,000 to conduct a general manufacturing business of radio sets, parts, accessories, etc., by Robert

(*Continued on Page* 242)

Warehouse Steel Prices

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles	3.00c
New York	3.24c
Philadelphia	3.20c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c

IRON BARS

Boston	3.265c
Buffalo	3.35c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
New York	3.24c
Philadelphia	3.20c
St. Louis	3.15c

REINFORCING BARS

Boston	3.25c to 3.50c
Buffalo	3.40c
Chicago	2.60c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles, C. L.	3.60c
Los Angeles, L. C. L.	4.00c
New York	2.80c
Philadelphia	2.80c
Pittsburgh	2.30c to 2.40c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.50c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.20c
Detroit	3.25c
Los Angeles	3.00c
New York	3.34c
Philadelphia	2.90c to 3.10c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.20c
Cleveland, 3/16-inch	3.425c
Detroit	3.20c
Detroit, 3/16-inch	3.45c
Los Angeles	3.00c
New York	3.34c
Philadelphia	2.90c to 3.10c
Philadelphia, 3/16-inch	3.06c to 3.26c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.35c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	4.05c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.45c to 3.76c
Detroit	3.95c
Los Angeles	4.20c
New York	3.89c
Philadelphia	3.85c
Portland	4.50c
San Francisco	4.20c
Seattle	4.50c
St. Louis	3.90c
St. Paul	4.05c

NO. 28 BLACK SHEETS

Boston	5.10c
Buffalo	4.75c
Chicago	4.50c
Cincinnati	4.55c
Cleveland	4.35c to 4.55c
Detroit	4.65c
Los Angeles	5.30c
New York	4.60c
Philadelphia	4.85c
Portland	5.00c
San Francisco	5.25c
Seattle	5.50c
St. Louis	4.65c
St. Paul	4.85c

NO. 28 GALVANIZED SHEETS

Boston	6.15c
Buffalo	5.85c
Chicago	5.50c
Cincinnati	5.65c
Cleveland	5.45c to 5.65c
Detroit	5.75c
Los Angeles	6.15c
New York	5.60c
Philadelphia	6.00c
Portland	6.00c
San Francisco	6.25c
Seattle	6.50c
St. Louis	5.65c
St. Paul	5.65c to 5.90c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.85c
Detroit	3.80c
Los Angeles	4.00c
New York	3.99c
Philadelphia	3.95c
Pittsburgh	3.60c
Portland	4.00c
San Francisco	4.00c
Seattle	4.25c
St. Paul	3.90c

HOOPS

Boston	5.50c
Buffalo	4.40c
Chicago	4.15c
Cleveland, 1-inch and wider No. 20 and heavier	3.85c
Cleveland, narrower than 1-inch	4.35c
Detroit	4.30c
New York	4.49c
Philadelphia, 1-inch and wider	3.95c
Philadelphia—narrower than ¾-inch	4.45c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.70c

COLD FINISHED STEEL

Boston (shapes)	4.65c
Boston (rounds)	4.15c
Buffalo (rounds)	4.20c
Buffalo (shapes)	4.70c
Chicago (shapes)	4.30c
Chicago (rounds)	3.80c
Cincinnati (rounds)	4.05c
Cincinnati (shapes)	4.55c
Cleveland (rounds)	4.00c
Cleveland (shapes)	4.50c
Detroit (rounds)	4.10c
Detroit (shapes)	4.60c
Los Angeles (rounds)	4.75c
New York (rounds)	4.15c
New York (shapes)	4.65c
Philadelphia (rounds)	4.15c
Philadelphia (shapes)	4.65c
Pittsburgh (rounds)	3.80c
Pittsburgh (sq. hex. and flats)	4.30c
Portland	4.50c
San Francisco (rounds)	5.25c
Seattle (rounds)	4.75c
St. Paul (rounds)	4.05c

WELDED PIPE

Discounts from warehouse, New York City

Standard Steel Pipe

(Subject to Shading)

	Black	Galvanized
⅛-⅜-inch butt	—31	+ 2
½-inch butt	—41	—24
¾-inch butt	—46	—32
1/3-inch butt	—48	—34
3½-inch lap	—44	—30
7-8-inch lap	—41	—11
9-10-inch lap	—35	— 8
11-12-inch lap	—34	— 6

Wrought Iron Pipe

	Black	Galvanized
⅛-⅜-inch butt	+44	+78
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1-1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
3-6-inch lap	—11	+ 6
7-12-inch lap	— 3	+16

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 55 per cent iron	$5.65
Mesabi bessemer, 55 per cent iron	5.40
Old Range nonbessemer, 51½ per cent iron	4.90
Mesabi nonbessemer, 51½ per cent iron	4.75

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.00
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, c.i.f. Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	9.50 to 10.00
Algerian low phosphorus, 52 to 54 per cent	10.50 to 11.00
Swedish and Norwegian low phosphorus, 68 per cent.	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent	8.00 to 9.00
Algerian foundry and basic, 50 to 54 per cent	8.00 to 9.00

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent....nominal
Indian, minimum 47 per cent....nominal
Caucasian, 53 to 55 per cent ....
.....Ordinary, nominal c.i.f. tidewater
.....Washed, 42 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$20.00
Washed gravel, imported duty paid eastern tidewater, per net ton	17.50 to 18.50

APPLYING UNDERGROUND METHODS TO THE OPEN PIT

for SLUSHING, SCRAPING, HAULING and HOISTING

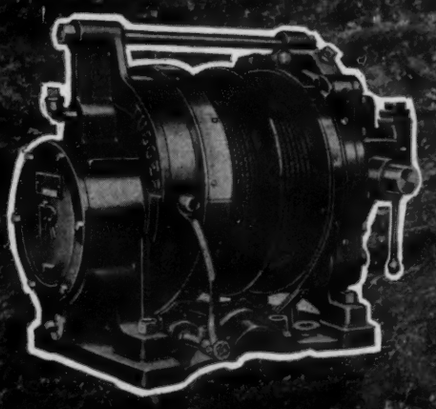
"Little Tugger" Hoist.

The "Little Tugger"
Double Drum Hoist with two men does the work of a *gang* of men using hand methods.

Taking advantage
of the underground methods of scraping, loading and hauling—"Slushing"—many open pit workings greatly increased their output during 1924.

"Little Tugger" Hoists
are easily portable. They can be mounted anywhere in a few minutes time—and operated by unskilled labor.

INGERSOLL-RAND CO. 11 Broadway New York
Offices in principal cities the world over.
For Canada, refer Canadian Ingersoll-Rand Company, Ltd., 260 St. James Street, Montreal, Quebec.



Ingersoll-Rand

18588

Construction and Enterprise

(*Continued from Page 239*)

Himmel, Leonard Martel and Margaret Carey.

CHICAGO—Rawson & Eisenberg, 5 North La Salle street, have plans for constructing a 1-story, 120 x 177-foot pressed brick and wooden garage for Harry Bosches & Co., 1443 South Harding avenue.

CHICAGO—Chicago Engineering Works, Inc., 2150 Lawrence avenue, has been incorporated for $2,000,000 by R. D. Smith, Beverly B. Vedder, V. M. Hancher, M. M. Morse and Chalmers L. McGaughey.

CHICAGO—Ideal Ice Machine Co., 2256 West Walnut street, has been incorporated for $5000 to manufacture and deal in refrigerating machinery, refrigerators, ice boxes etc., by Ruth Easor, James W. Rabbitt and Walter W. Wiebe.

CHICAGO—Delta Star Electric Co., manufacturer of high tension power line equipment, has awarded contracts to the Austin Co., Cleveland, builder, for constructing a 1-story, 54x125-foot manufacturing plant to cost about $30,000.

CHICAGO—Sanborn & Lindeblad Co., 310 South Michigan avenue, has been incorporated for $25,000 to manufacture and deal in plumbing and heating supplies, radiation and boilers, by E. W. Sanborn, N. C. Sanborn and A. S. Lindeblad.

CHICAGO—K. R. Furnace Co., 32 South Clinton street, has been incorporated for $30,000 to manufacture and deal in furnaces, engines, boilers, heating plants, etc., by Robert H. Kuss, Fred L. Raymond and Robert B. Ennis.

CHICAGO—Echophone Radio, Inc., 230 South Clark street, has been organized with $50,000 and 500 shares no par value stock, to manufacture and deal in electrical equipment, electrical accessories and supplies, by Charles Buckman, Jonathan Berg and A. R. MacDonald.

CHICAGO—Perry Wright Co., 5613 West Lake avenue, has been formed with $50,000 capital, to manufacture and deal in automobile accessories, attachments and bumpers, by Ira D. Perry, Ivan L. Taylor and William H. Babcock.

CHICAGO—Master Motor Truck Service Corp., 2381 Archer avenue, has been incorporated for $20,000 to manufacture and deal in spare parts, repair parts and accessories for motor trucks and other vehicles, by Henry Moses, Milton L. Levisohn, Leslie H. Steinberg, and Charles C. Smith.

CHICAGO—Lincoln Schlueter Machinery Co., 225 West Illinois street, has been incorporated for $20,000 to manufacture and deal in machinery and products for polishing, waxing and surfacing floors. King, Brower & Hurlbut, First National Bank building, are correspondents.

STERLING, ILL.—Hustler Toy Co., 309 West Third street, has been formed for $60,000 to manufacture and deal in toys, mechanical and metallic playthings, etc., by L. C. Thorne, Peter Frantz, C. W. Lehman and J. W. Wentzel.

INDIANAPOLIS, IND.—Eli Lilly & Co., are taking bids for constructing a 5-story, 100 x 260-foot $1,000,000 plant of reinforced concrete for the manufacture of chemicals. J. K. Lilly, 700 South Alabama street, is president of the Lilly company. R. Frost Daggett, Consolidated building, is architect.

MARSHALLTOWN, IOWA—Marshalltown Trowel Co. plans constructing 1-story, 60 x 160-foot plant for the manufacture of trowels. J. C. Williams is president.

MARSHALLTOWN, IOWA—The C. A. Dunham Co., 230 East Ohio street, Chicago, manufacturer of steam specialties, will take bids about Jan. 20 for a 2-story, 50 x 150-foot plant on East Main street. H. E. Reimer, Kibby building, is architect.

NEW ORLEANS—Johns-Manville Co., Inc., Magazine and Gravier streets, has leased a building of the American Cotton Oil Co., Gretne, where it will manufacture shingles and roofing.

BIDDLEFORD, ME.—The city plans constructing a 3-story, 70 x 100-foot high school containing scientific and vocational laboratories, etc., for which Kronyn & Brown, 220 Devonshire street, Boston, are architects.

BALTIMORE—Republic Boiler & Radiator Co. contemplates building a 1-story warehouse on Union avenue.

CHAONIA, MD.—Iron Hill Ore Co. plans to construct a new ore plant costing approximately $130,000.

CAMBRIDGE, MASS.—Worthington Pump & Machinery Corp., 200 Devonshire street, Boston, has awarded contracts for constructing a 1-story, 80x165-foot foundry addition to its plant on East Third street.

CHARLESTOWN, MASS.—Stanley Harlow, Inc., 340 Main street, is seeking additional tools and equipment for a repair shop extension.

EAST BOSTON, MASS.—B. Mullen, 27 Central Square, East Boston, is planning constructing a 1-story, 110x115-foot repair and service garage between Bennington and Saratoga streets, East Boston. F. A. Norcross, 46 Central Square, is architect.

MAYNARD, MASS.—The school board is inquiring for metalworking equipment for a new manual training department.

WORCESTER, MASS.—S. Malkasion, 41 Forbes street, will construct a 1-story automobile repair shop and service station on Hitchcock street.

DETROIT—Fire recently damaged the plant of the Vincent Steel Process Co., the plant of the Michigan Republic Gear Co. and several other industrial companies.

DETROIT—W. J. Burton Co., Junction and Federal avenues, has retained Albert Kahn, Inc., 1000 Marquette building, for a 4-story, 100 x 124-foot stone and reinforced concrete warehouse. The Burton company manufactures tanks, ties, roofing, etc.

LINCOLN PARK, MICH.—Detroit Electric Stove Co., 3435 Piquette avenue, plans constructing brick and steel plant on Howard boulevard. Arthur H. Happe is president.

ALBERT LEA, MINN.—C. D. Edwards Co., 275 West Williams street, manufacturer of agricultural implements, has retained Gaarder & Gaarder, Home Investment building, as architects for 1-story, 80 x 200-foot building.

AURORA, MO.—Beth Chemical Corp., New York, is to construct a plant here at $350,000 cost for the production of chemicals.

ELIZABETHPORT, N. J.—Singer Mfg. Co. has awarded contract to Bentley & Morrison, 223 Grove street, Elizabeth, N. J., for a shop to be used for electric annealing purposes. *Noted Dec. 25.*

NEWARK, N. J.—The Horni Signal Mfg. Corp., 153 Freylinghuysen avenue, has been incorporated to manufacture metal traffic signals.

NEWARK, N. J.—The Newark Sheet Metal & Kalomein Co., has purchased property in South Grove street, for the erection of a new plant.

ALBANY, N. Y. —Versare Corp. has been formed with 6000 shares no par value common stock to manufacture motors and engines, by F. Pruyn, R. McDonald and A. L. Andrews.

BRONX, N. Y.—Acme Iron & Steel Corp. has been incorporated for $20,000 by J. M. Davis, M. Schier and M. Antine with Osborne & Eltinger, 280 Madison avenue, as attorneys.

BROOKLYN, N. Y.—South Third Street Metal Co. has been incorporated for $10,000 to deal in metals and other products by M. Schorr and H. Bloom with P. Wharfman, 247 McKibbin street, as attorney.

BUFFALO, N. Y.—Paragon Gun-Ite Corp. has been incorporated for $20,000 to do a sand blasting business, by H. F. Stimm, H. R. Tumin, and M. Weimar as attorney.

BUFFALO, N. Y.—White Cummings Corp. has been incorporated for $50,000 to manufacture and deal in automobile accessories, by H. Z. White, J. C. Cummings and W. L. Durham, with T. C. Burke, as attorney.

COHOCTON, STEUBEN COUNTY, N. Y. —Cohocton Valley Garage, has been incorporated for $50,000 to maintain an automobile garage and repair shop, by R. A. Conlon, J. T. Ersfeld and F. H. Nutt, with E. S. Brown as attorney.

NEW YORK—Stop Wall Plug Corp of America has been incorporated for $20,000 to manufacture electrical equipment, by A. Bernstein, A. Fromhartz and H. Ganz, Bronx.

NEW YORK—Amico Art Metal & Iron Co. has been incorporated for $5000 by N. and A. Brooks and J. Howard, with J. McLaren, 145 Nassau street, as attorney.

NEW YORK—Richmond Steel Co. has been incorporated for $5000 by D. A. Dorsey, E. B. Roberts, and R. J. Sykes, with Bonynge & Barker, 27 William street, as attorneys.

NEW YORK—Straus-Celb have been incorporated for $10,000 to conduct a used machinery business, by J. Straus, M. Bader and M. W. Schwartz, 15 Park Row, as attorney.

NEW YORK—Leon Weil has been incorporated for $20,000 to manufacture metal goods, by H. J. Redfield, J. K. Lesser and A. Mahler, with F. J. Knorr, Albany, N. Y., as attorney.

NEW YORK—Irving Kasanoff has been incorporated for $20,000 to deal in scrap metals, by T. Albert, M. M. Schwartz and A. Deutsch, with Rosett & Deutsch, 130 West Forty-second street, as attorneys.

NEW YORK—Knitting Machinery Corp. has been incorporated for $50,000 to manufacture and deal in machinery by A. Skillma, J. S. Quinn and A. J. Johnston, with H. Goldman, 129 Broadway, as attorney.

NEW YORK—Woodhouse Mfg. Co. has been incorporated for $50,000 to manufacture and deal in fire apparatus, by D. A. Woodhouse, H. J. Kuss and C. C. Beekman, 256 Broadway, attorney.

NEW YORK—Amity Metal Spinning & Lighting Fixture Co. has been incorporated for $20,000 to manufacture and deal in metal products, by S. Silverstein, I. and L. Gelfand, with H. Grill, 41 Park Row, as attorney.

NEW YORK—Beers-Tapman have been formed with 1500 shares no par value stock, to do metal work, by W. W. Beers, S. F. Tapman Jr., and P. A. Bougerie, with Davis, Wagner, Heater & Holton, 120 Broadway, as attorneys.

NEW YORK—Ruhe & Sonen have been incorporated with 100 shares $10 par value preferred and 400 shares common $100 par value stock and $50,000 active capital, to manufacture machinery for the garment trades, by P. P. Ruhe, W. A. and F. Sonon, with M. Levy, 250 West Fifty-seventh street, as attorney.

NEW YORK—Reisenberg Mfg. Co. has been incorporated with 1000 shares $100 par preferred and 1000 shares no par value common to manu-

facture and deal in machinery, etc., by F. S. Reisenberg, W. E. Law and J. D. Nunen, Jr., with Bate, Boyd & Swinnterson, 32 Liberty street, as attorneys.

QUEENS, L. I., NEW YORK—Vorbach Bros. have been incorporated for $50,000 to manufacture musical instruments, by J. L. and C. J. and L. Vorbach, with D. A. Fraser, 258 Broadway, Brooklyn, as attorney.

QUEENS, L. I., NEW YORK—Keiner Metal Forging Co. has been incorporated with 250 shares no par value stock, by H. J. Witte, F. A. Fullhardt and S. S. Cox, with A. J. Carlin, 2 Rector street, as attorney.

ROCHESTER, N. Y.—Reisinger Mfg. Co. has been incorporated with 1000 shares $100 par preferred stock and 1000 shares no par value common, to manufacture and deal in automobile accessories, by G. Reisinger, R. Lyman and F. F. Schwab, and M. E. Rigney as attorney.

SYRACUSE, N. Y.—W. C. Lipe has been incorporated for $125,000 to conduct a machine shop business, by W. C. Lipe, G. W. Sponable and L. G. Ford, with Hancock, Dorr, Spriggs & Shove, as attorneys.'

CHARLOTTE, N. C.—C. C. Coddington, Inc., West Trade street, has retained Albert Kahn, Inc., 1000 Marquette building, Detroit, as architect for 5-story, 100 x 200-foot automobile sales and service building at Trade and North Graham streets.

CHARLOTTE, N. C.—Lockwood, Greene & Co., Boston, engineers, have been awarded contracts for engineering and architectural services on constructing the Piedmont Junior high school. Minter Homes Co., Greenville, S. C., are general contractors. The school will contain laboratories and vocational training rooms.

FARGO, N. D.—Fargo Metal & Iron Co. soon will take bids on constructing a 1-story, 25 x 125-foot warehouse. J. E. Rosatti, 117 Broadway, is architect. S. Paper is president of the Fargo Metal company.

AKRON, O.—The Goodyear Tire & Rubber Co., will construct a machine shop addition to its plants.

CLEVELAND—Rud Machine Co., 1036 West Eleventh street, was damaged by fire recently with light loss.

CLEVELAND—J. J. Shepard, 1078 West Eleventh street, manufacturer of fire clay and fire brick, was damaged slightly by fire recently.

CLEVELAND—Homestead Sheet & Metal Co., 7924 Broadway, has taken out a building permit for constructing a warehouse addition at that address.

CLEVELAND—International Steel Tie Co., 16702 Waterloo road, has taken out a building permit for constructing an addition at that address.

CLEVELAND—The Flexible Road Joint Machine Co. has been incorporated for $500 to manufacture and deal in machinery, by John N. Heltzel, J. William Heltzel, W. E. Calderwood, J. E. Bricker and William J. Savage.

MINERAL RIDGE, O.—Ridge Cast Products Co. has awarded contracts to Warren Engineering Co., 28 West Atlantic street, Warren, O., for constructing 1-story, 60 x 400-foot foundry and machine shop of brick and steel.

TOLEDO, O.—Work is progressing rapidly on the new plant of the Champion Spark Plug Co., which is to be in operation before March 1. The structure will be a 1-story building with a capacity of 60 tons of cold drawn steel daily, and with a 3000-ton storage capacity. *Noted Nov.* 20.

TOLEDO, O.—Industrial Steel Castings Co., South Water Works drive, is taking bids on construction of a 1-story, 150 x 180-foot addition to its foundry on Millard avenue. An electric furnace and other equipment is to be installed. J. L. Tillman is president of the company. Mills, Rhines, Bellman & Nordhoff. 1234 Ohio building, are architects.

OKLAHOMA CITY, OKLA.—Hughes Tool Co., 300 Hughes street, Houston, Tex., has awarded contracts for constructing a machine shop here.

GROVE CITY, PA.—Bessemer Gas Engine Co. contemplates building for construction on Lincoln avenue in the spring. J. Carrothers is president.

KENNETT SQUARE, PA.—American Road Building Machinery Co. has awarded W. D. Haddock & Co., 804 Orange street, Wilmington, Del., contract for 1-story, 100 x 125-foot plant. W. Steele & Sons Co., 219 South Broad street, Philadelphia, are engineers. *Noted Dec.* 25.

PHILADELPHIA—A $40,000 plant addition will be erected at Wissahickon and Hunting Park avenue. The Conkling-Armstrong Co. has the general contract.

PHILADELPHIA—The American Fabricated Steel Co. has been awarded the general contract for alterations to the plant of the Clearfield Machine Co., on Rockland avenue, east of Seventh street.

PHILADELPHIA—A 6-story plant addition will be erected by H. Disston & Son, Inc., manufacturer of saws and other tools, at Wissaming and Unruh streets, Tacony, near here. Wm. Steele & Sons, 219 North Broad street, are engineers in charge.

PHILADELPHIA — Philadelphia Rapid Transit Co., 1520 Spruce street, W. C. Dunbar, president, plans altering 1-story, 178 x 495-foot building from a car barn to a garage and automobile repair shop. H. E. Baton, Inc., 1713 Sansom street, is general contractor.

PHILADELPHIA—Walworth Mfg. Co. has retained Clarence E. Wunder, 1520 Locust street, as architect for a 6-story reinforced concrete building to be constructed on Hunting Park avenue near Fox street. Howard Connley, 81 Pearl street, Boston, and 245 Arch street, Philadelphia, is president. ,

PITTSBURGH—J. S. McCormick Co., foundry supply dealer, was damaged by fire recently with slight damage.

WARREN, PA.—The Struthers-Wells Co. will build a 1-story addition to its plant for the manufacture of steel plate products.

WARREN, PA.—United Auto Parts Co., Inc., has been incorporated for $25,000 by W. F. Messner to manufacture and deal in automobile parts and accessories.

WILKES-BARRE, PA.—Hazard Mfg. Co., William H. Conyngham, 81 East Ross street, president, contemplates constructing a 4-story, 100 x 100-foot addition to its wire rope plant at 76 Hazel street.

PROVIDENCE, R. I.—The Nutron Mfg. Co. has been incorporated for $15,000 to manufacture and deal in electrical appliances, by Harold Semple, Hoyt W. Lark and Patrick P. Curran.

SPARTANBURG S. C.—Blue Ridge Power Co. will start shortly to construct a 70,000-horsepower hydroelectric power station.

KNOXVILLE, TENN.—A $2,500,000 municipal water plant is to be erected here. It will be built on the unit basis so that in time 40,000,000 gallons per day can be had. Plans provide for a pumping station on the Tennessee river.

HOUSTON, TEX.—Tennison Mfg. Co. will construct a 3-story, 100x250-foot plant at Franklin, Hamilton and Commerce streets for the production of sheet metal products. H. B. Tennison is owner. Joseph Finger, Keystone building, is architect.

HOUSTON, TEX.—Horton & Horton, McKinney and Velasco streets, have been incorporated for $500,000 by George Horton, R. F. Crawford and A. Thorstenburg. Construction will be started shortly on marine ways at Cotton Patch bayou in two units, one for vessels up to 1000 tons and smaller ways for lighter craft. Shell, gravel and sand loading and unloading wharves will be erected.

RUTLAND, VT.—Lincoln Iron Works plans reconstructing its plant recently damaged by fire.

TACOMA, WASH.—Lake Cushman power interests have awarded contracts to the Star Iron Works here for erecting a power substation. Dougan & Christman, Hinckley building, Seattle are general contractors.

HUNTINGTON, W. VA.—A. C. Love Co. is in the market for a 200 to 250-ton hydraulic wheel press. The company manufactures mill, mine and contractor's equipment.

BALSAM LAKE, WIS.—C. W. Nystrom, commissioner of Polk county, plans purchase of metalworking equipment for the repairing of automobile trucks.

BELOIT, WIS.—A. G. McCreary, chairman of the board of education, is taking bids on constructing 2-story, 106 x 188-foot brick and concrete vocational high school. Noman & Skogstad, Linker building, La Crosse, Wis., are architects.

KENOSHA, WIS.—Nash Motors Co. has awarded contracts to Worden-Allen Co., 208 South LaSalle street, Chicago, for a 1-story 100 x 400-foot brick foundry on Edwards street. Charles Nash, Park and Edwards streets, is president of the Nash company.

KEWAUNEE, WIS.—Leyse Aluminum Co., contemplates constructing plant addition in the spring. A. G. Leyse is president of the company.

MADISON, WIS.—The 2-story garage, 65 x 135 feet, of the Madison Motor Car Co. will be remodeled and an addition of the same size erected at once at a cost of $75,000. Architect Edward Tough has let the work to Cnare Bros. Co., Madison.

MILWAUKEE—The Allen-Bradley Co., manufacturer of electrical controlling devices, will build a 2-story addition to its plant at Greenbush and Clinton street.

MILWAUKEE—Contracts have been let by the Globe Wire & Iron Works for a $20,000 addition to its plant at 1015 Atkinson avenue. The company makes ornamental iron and brass goods, bank grills, elevator cabs, etc.

MILWAUKEE—A loss of $15,000 was caused by fire in the storage building of the A. E. Martin Foundry & Machinery Co. at 705 Park street on Dec. 29. The foundry and other main buildings were only slightly damaged. Repairs are being made.

MILWAUKEE.—Wisconsin Realty Co. is constructing a 3-story, 46 x 140-foot concrete and steel warehouse for which Davis & Tuckwell, 332 Grove street, are architectural engineers. Boiler room, electrical, elevating and handling material equipment are to be purchased.

Business in Canada

HAMILTON, ONT.—The McCoy Anderson Radiator Co., Ltd., has been incorporated to manufacture motorcycles, automobiles, motors, radiators, engines and other products, with $600,000 capital stock, by Arthur G. Browning, Norman W. Byrne and Percy J. E. Graham.

LONDON, ONT.—Cunningham Furnace & Machinery Co., Ltd., has been incorporated to manufacture and deal in machinery, engines, engine supplies, motors, tools, etc., with $200,000 capital stock, by Roy H. Cunningham, Albert H. Bartley and Bertie J. Carson.

WINGHAM, ONT.—George & Robertson are in the market for equipment for an automobile garage and repair shop.

Iron and Steel Scrap Prices

CORRECTED TO TUESDAY NOON GROSS TONS DELIVERED TO CONSUMER

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	15.50 to 16.00
Boston (dealers)	16.00 to 16.50
Buffalo	19.50 to 20.50
Chicago	20.50 to 21.00
Cleveland	21.00 to 21.25
Cincinnati (dealers)	16.50 to 17.00
Detroit	18.50 to 19.50
Eastern Pennsylvania	20.00 to 21.00
New York (dealers)	15.50 to 16.50
Pittsburgh	22.00 to 22.50
St. Louis	18.00 to 18.50
Valleys	22.00 to 22.50
No. 1 railroad steel New York (dealers)	16.50 to 17.00

COMPRESSED SHEETS

Buffalo	18.50 to 19.00
Chicago	16.75 to 17.25
Cleveland	18.00 to 18.50
Detroit	17.00 to 17.50
Pittsburgh	21.00 to 21.50
Valleys	20.00 to 20.50

BUNDLED SHEETS

Buffalo	15.50 to 16.00
Cincinnati (dealers)	12.50 to 13.00
Cleveland	15.50 to 16.00
Detroit	15.00 to 15.50
Eastern Pennsylvania	17.50 to 18.50
Pittsburgh	20.00 to 20.50
St. Louis	12.50 to 13.00
Valleys	18.00 to 18.50

SHEET CLIPPINGS, LOOSE

Chicago	12.50 to 13.00
Detroit	13.00 to 13.50

STEEL RAILS, SHORT

Birmingham	15.00 to 16.00
Detroit, No. 2	14.50 to 15.00
Chicago	21.50 to 22.00
Cincinnati (dealers)	18.00 to 18.50
Cleveland (over 6 ft.)	20.00 to 20.50
St. Louis	20.50 to 21.00

STOVE PLATE

Birmingham	15.00 to 16.00
Boston (consumers)	15.50 to 16.00
Buffalo	16.50 ot 17.00
Chicago	19.00 to 19.50
Cincinnati (dealers)	12.50 to 13.00
Cleveland	16.00 to 16.50
Detroit (net tons)	15.00 to 15.50
Eastern Pennsylvania	17.00
New York (dealers)	12.75 to 13.50
Pittsburgh	17.00 to 17.50
St. Louis	17.25 to 17.75

LOW PHOSPHORUS

Buffalo	22.50 to 23.00
Cincinnati((dealers)	18.00 to 18.50
Eastern Pennsylvania	23.00 to 25.00
Pitts. billet and bloom crops	26.00 to 26.50

SHOVELING STEEL

Chicago	20.25 to 20.75
Pittsburgh	15.50 to 16.00
St. Louis	18.00 to 18.50

KNUCKLES, COUPLERS, SPRINGS

Chicago	23.00 to 23.50
Eastern Pennsylvania	22.00 to 23.00
Pittsburgh	24.00 to 24.50
St. Louis	22.50 to 23.00

FROGS, SWITCHES, GUARDS

Chicago	21.00 to 21.50
Eastern Pennsylvania	19.00 to 20.00
St. Louis	20.00 to 20.50

BOILER PLATE, CUT

St. Louis	12.50 to 13.00

ANGLE BARS—STEEL

Buffalo	20.50 to 21.00
Chicago	22.00 to 22.50
St. Louis	19.00 to 19.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	14.00 to 15.00
Boston (dealers)	16.00 to 17.00
Buffalo No. 1	17.00 to 17.50
Buffalo No. 2	19.50 to 20.50
Cleveland, No. 1	17.00 to 17.50
Chicago, No. 1	19.75 to 20.25
Chicago, No. 2	20.50 to 20.75
Cincinnati, No. 1 (dealers)	14.00 to 14.50
Detroit, No. 2	15.00 to 15.50
Eastern Pennsylvania	21.00 to 22.00
New York, No. 1 (dealers)	17.00 to 17.50
Pittsburgh, No. 1	18.50 to 19.00
Pittsburgh, No. 2	22.00 to 22.50
St. Louis, No. 1	17.50 to 18.00
St. Louis, No. 2	17.75 to 18.25

WROUGHT PIPE

Boston (dealers)	13.50 to 14.00
Buffalo	14.00 to 14.50
Eastern Pennsylvania	18.50
New York (dealers)	14.50 to 15.00

YARD WROUGHT

Boston	16.00 to 16.50
Eastern Pennsylvania	19.00 to 20.00

CITY WROUGHT

New York, long	16.00 to 16.50

BUSHELING

Buffalo	18.50 to 19.00
Chicago, No. 1	17.50 to 18.00
Chicago, No. 2	13.50 to 14.00
Cincinnati, No. 1 (dealers)	13.00 to 13.50
Cleveland, No. 1	16.75 to 17.00
Cleveland, No. 2	15.25 to 15.75
Eastern Pennsylvania	15.00 to 16.00
Pittsburgh, No. 1	18.00 to 18.50
St. Louis, No. 1	16.50 to 17.00

MACHINE SHOP TURNINGS

Birmingham	8.00 to 9.00
Boston (dealers)	12.50 to 13.00
Buffalo	14.25 to 14.75
Chicago	13.00 to 13.50
Cincinnati (dealers)	13.00 to 13.50
Cleveland	17.00 to 17.50
Detroit	13.50 to 14.00
Eastern Pennsylvania	17.00 to 18.00
New York (dealers)	13.25 to 13.75
Pittsburgh	18.00 to 18.50
St. Louis	11.00 to 11.50
Valleys	16.25 to 16.75

CAST IRON BORINGS

Birmingham (chemical)	15.00 to 16.00
Birmingham (plain)	8.00 to 9.00
Boston (chemical)	16.00 to 16.50
Boston (dealers)	11.50 to 12.00
Buffalo	14.50 to 15.00
Chicago	16.25 to 16.75
Cincinnati (dealers)	13.00 to 13.50
Cleveland	17.00 to 17.25
Detroit	13.50 to 14.00
Eastern Pennsylvania (chem.)	21.00 to 22.00
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	11.25 to 11.75
Pittsburgh	18.00 to 18.50
St. Louis	14.25 to 14.75
Valleys	17.25 to 17.50

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	10.00 to 10.50
Cleveland	17.00 to 17.25
Detroit	13.50 to 14.00
Eastern Pennsylvania	13.00 to 15.00
New York (dealers)	10.50 to 11.00
Pittsburgh	15.50 to 16.00

IRON AXLES

Birmingham	19.00 to 20.00
Boston (consumers)	31.00 to 32.00
Buffalo	26.50 to 27.00
Chicago	31.25 to 31.75
Cincinnati (dealers)	24.50 to 25.00
Eastern Pennsylvania	30.00
St. Louis	28.00 to 28.50

IRON RAILS

Buffalo	18.00 to 18.50
Chicago	20.50 to 21.00
Cincinnati (dealers)	14.00 to 14.50
St. Louis	18.00 to 18.50

PIPES AND FLUES

Chicago	16.00 to 16.50
Cincinnati (dealers)	11.00 to 11.50
Cleveland	15.25 to 15.75
St. Louis	14.00 to 14.50

RAILROAD GRATE BARS

Buffalo	15.50 to 16.00
Chicago	18.50 to 19.00
Cleveland	16.00 to 16.50
Eastern Pennsylvania	17.00 to 17.50
New York (dealers)	15.00 to 15.50
St. Louis	17.25 to 17.75

FORGE FLASHINGS

Boston (dealers)	12.50 to 13.00
Buffalo	15.00 to 15.50
Chicago	14.50 to 15.00
Cleveland (under 10 in.)	16.00 to 16.50
Cleveland (over 10 in.)	15.25 to 15.75
Detroit	13.00 to 13.50
Pittsburgh	17.00 to 17.50

FORGE SCRAP

Boston (dealers)	12.50 to 13.00
Chicago	24.00 to 24.50
Eastern Pennsylvania	17.50 to 18.50

ARCH BARS AND TRANSOMS

Chicago	25.25 to 25.75
St. Louis	23.00 to 23.50

ANGLE BARS—IRON

Chicago	23.00 to 23.50
St. Louis	23.00 to 23.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	12.50 to 13.00
Buffalo	15.00 to 15.50
Chicago	18.25 to 18.75
Cleveland	18.25 to 18.50
Eastern Pennsylvania	18.50 to 19.00
Pittsburgh	18.50 to 19.00
St. Louis	14.50 to 15.00

STEEL CAR AXLES

Birmingham	18.00 to 19.00
Boston (shipping point)	20.00 to 20.50
Buffalo	20.00 to 20.50
Chicago	24.00 to 24.50
Cleveland	20.00 to 20.50
Eastern Pennsylvania	25.00 to 26.00
Pittsburgh	24.00 to 24.50
St. Louis	22.50 to 23.00

SHAFTING

Boston (shipping point)	20.00 to 20.50
Chicago	24.00 to 24.50
Eastern Pennsylvania	25.00 to 26.00
New York (dealers)	19.50 to 20.50
St. Louis	21.50 to 22.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, tram car	17.00 to 18.00
Birmingham, iron	16.00 to 17.00
Boston (consumers)	18.00 to 19.00
Buffalo	20.50 to 21.00
Chicago, iron	22.00 to 22.50
Chicago, steel	23.00 to 23.50
Cincinnati	14.50 to 15.00
Eastern Pennsylvania	20.00 to 21.00
New York iron (dealers)	16.00 to 17.00
Pittsburgh, iron	21.00 to 22.00
Pittsburgh, steel	24.00 to 24.50
St. Louis, iron	20.50 to 21.00
St. Louis, steel	22.50 to 23.00

NO. 1 CAST SCRAP

Birmingham, cupola	17.00 to 17.50
Boston (consumers)	19.50 to 20.00
Buffalo	18.25 to 18.75
Chicago, No. 1 machinery	23.00 to 23.50
Chicago No. 1 railroad or agricultural	21.00 to 21.50
Cincinnati No. 1 Machinery cupola (net tons dealers)	20.50 to 21.00
Cleveland, cupola	20.00 to 20.50
Detroit (net tons)	19.50 to 20.50
Eastern Pennsylvania, cupola	20.50 to 21.50
New York, cupola (dealers)	17.00 to 17.50
Pittsburgh, cupola	20.00 to 21.00
San Francisco, delivered	24.00
Seattle	18.00
St. Louis, railroad	20.50 to 21.00
St. Louis, agricultural	20.50 to 21.00
St. Louis, machinery	21.50 to 22.00
Valleys	19.50 to 19.75

HEAVY CAST

Boston (consumers)	17.50 to 18.00
Buffalo (breakable)	16.00 to 16.50
Cleveland	16.00 to 16.50
Detroit (automobile) (net ton)	22.50 to 23.50
Eastern Pennsylvania	18.50 to 19.00
New York (dealers)	17.00 to 17.50
Pittsburgh	19.00

MALLEABLE

Boston (railroad	19.00 to 20.00
Buffalo	20.00 to 21.00
Chicago, railroad	21.50 to 22.00
Chicago, agricultural	18.50 to 19.00
Cincinnati, agricultural (dealers)	17.50 to 18.00
Cincinnati, railroad (dealers)	18.00 to 18.50
Cleveland, agricultural	19.50 to 20.00
Cleveland, railroad	22.50 to 22.75
Detroit	18.50 to 19.00
Eastern Pennsylvania, railroad	16.50 to 17.00
Pittsburgh, railroad	22.00 to 22.50
St. Louis, agricultural	17.75 to 18.00
St. Louis, railroad	18.25 to 18.75

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

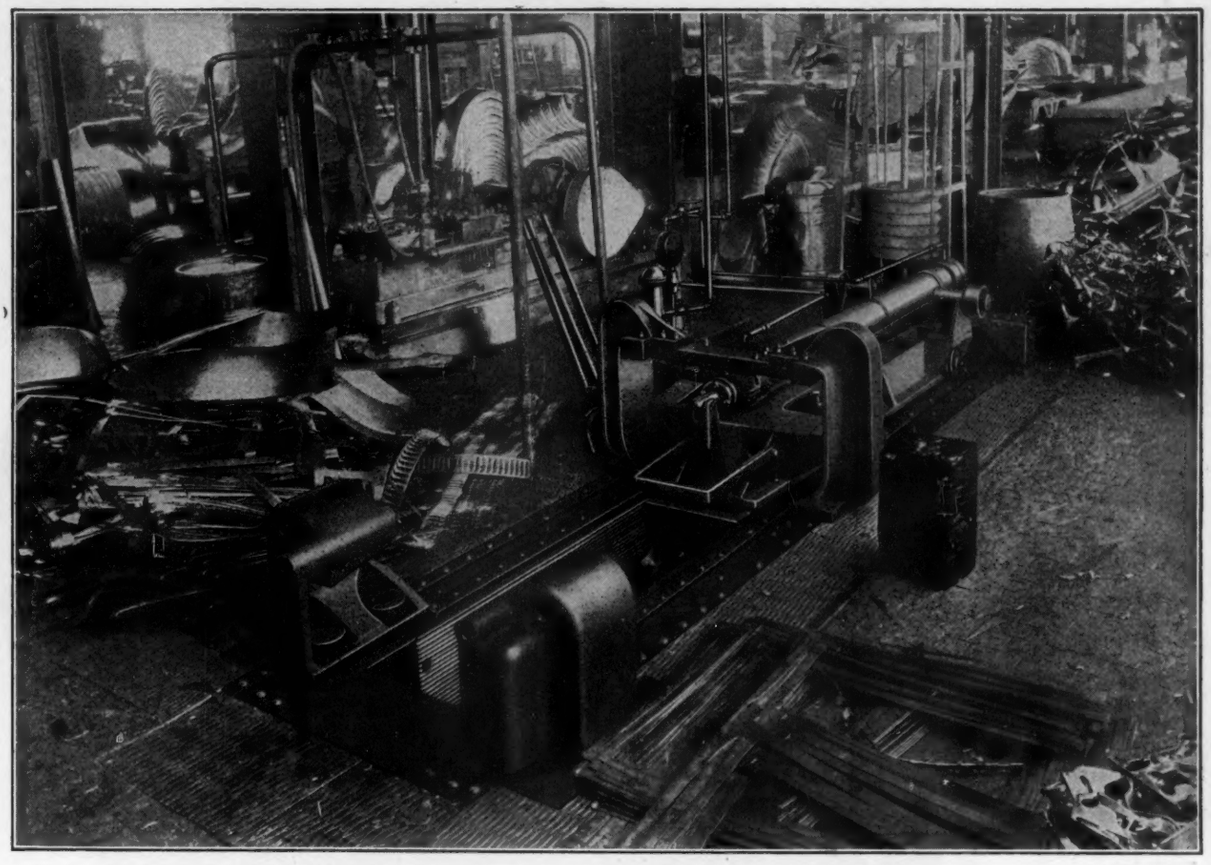
Birmingham tram car	16.50 to 17.50
Boston (dealers)	15.50 to 16.00
Chicago	21.50 to 22.00
Cleveland	21.00 to 21.25
Detroit	18.50 to 19.00
Eastern Pennsylvania	21.00 to 22.00
New York (dealers)	17.50 to 18.00
Pittsburgh district	23.50 to 24.00
St. Louis	21.00 to 21.50

LOCOMOTIVE TIRES

Chicago	21.50 to 22.00
St. Louis	19.00 to 19.50

LOW PHOSPHORUS PUNCHINGS

Chicago	21.00 to 21.50
Eastern Pennsylvania	22.00
Pittsburgh	24.50 to 25.00



Typical Installation in Well-Known Automobile Plant

WHY SHEET-SCRAP CAN BE PROFITABLY COMPRESSED

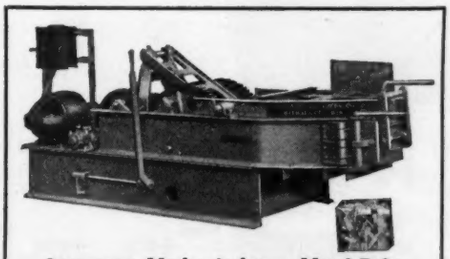
It commands at all times the best price;
It can be more conveniently stored;
It can be more economically handled;
It can be readily held for favorable markets;
It practically eliminates corrosion;
It permits of loading cars to capacity;
It saves much heat in remelting.

LOGEMANN SCRAP-METAL PRESSES

Hydraulic and Mechanical Types

LOGEMANN BROTHERS COMPANY
3126 Burleigh St. Milwaukee, Wis.

Also presses making crucible-size bricks of copper, brass, aluminum and other metals.



Logemann Mechanical-type Metal Baler

Please indicate character of scrap, quantity and heaviest gauge, when writing.

Iron and Steel Prices

Nuts and Bolts

F.o.b. producer's plant freight allowed on 1000 pounds or more, substantially all points east of Mississippi and north of Ohio river.

Hot pressed square tapped or blank .....$4.00 off list
Hot pressed hexagon tapped or blank .....$4.40 off list
Cold punched square or hexagon blank .....$4.10 off list
Cold punched square or hexagon tapped or blank .....$4.10 off list
Cold punched semifinished hexagon nuts ½-inch and larger ....75, 10 and 5 off
Cold punched semifinished hexagon nuts 9/16-inch and smaller..80, 10 and 5 off
Price f.o.b. Pittsburgh, packages of 50.

CARRIAGE BOLTS

(⅜ x 6", smaller and shorter)

Rolled thread .....50, 10 and 5*
Rolled thread .....50, 10 and 10 off
Cut thread (all sizes) .....50 and 10 off
Eagle carriage bolts (Eagle list) 65 and 10 off

MACHINE BOLTS

(⅜ x 4", hot pressed nuts)

Rolled thread .....50, 10 and 5*
Rolled thread .....60 and 10 off
Cut thread (all sizes) ....50, 10 and 10 off
(All sizes cold punched nuts)
Cut thread .....45, 10 and 5 off
Lag screws .....60, 10 and 10 off
Plow bolts Nos. 1, 2 and 3 heads.. ..... 50 and 10 off
4 to 10 heads .....50-10 + 20 off
*Flat and round head stove bolts.... .....80 and 5 off
Tap bolts .....30 off
Bolt ends with hot pressed nuts..... .....50, 10 and 10 off
Bolt ends with cold punched nuts.... .....45, 10 and 5 off
Blank bolts .....50, 10 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size) ....40 and 10 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight Allowed

	S. A. E. Castellated	U. S. S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	23.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application
*Price quoted on small business.

HEXAGON CAP AND SET SCREWS

Milled .....80, 10, and 10 off
Upset .....80, 10, 10 and 10 off
*F.o.b. producer's plant freight allowed on 300 pounds or more as above.

Rivets

Structural rivets, carloads Pittsburgh and Cleveland.... 2.60c
Structural rivets, carloads, Chicago 2.75c
Rivets, 7/16-in. and smaller Pittsburgh and Cleveland..70, 10 and 5 off
Rivets, 7/16-in. and smaller Chicago* .....70, 10 off
*Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought, c. l., Chicago dist..... .....$5.85 to $6.00 off
Wrought, c. l., Pitts. dist.....$6.10 off
Lock washers f.o.b. factory 80, 10 and 5 off

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount of $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

THREADS AND COUPLINGS

Butt Weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

Butt Weld

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
½-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
3¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

SEAMLESS COLD DRAWN*

1-inch	51-off
1¼ and 1½-inch	43 off
1¾-inch	27 off
2 and 2¼-inch	18 off
2½ and 2¾-inch	28 off
3 and 3¼-inch	32 off
3½ and 3¾-inch	33 off
4-inch	37 off
4½ and 5-inch	29 off

SEAMLESS HOT ROLLED*

3 and 3¼-inch	34 off
3½ and 3¾-inch	35 off
4-inch	39 off

SEAMLESS STEEL MERCHANT BOILER TUBES*

Extras:

Add $8 per net ton for more than four gages heavier than standard and add 10 per cents to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING*

Base Discounts

Carbon, 0.10 to 0.20 per cent ..... 83 off
Carbon, 0.30 to 0.40 per cent .... 81 off
Carbon, 0.40 to 0.50 per cent....net price
Plus differentials and extras for cutting.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES*

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	15c
2-inch	12-gage	15c
2-inch	11-gage	16c
2-inch	10-gage	17c
2¼-inch	12-gage	17c
2¼-inch	11-gage	18c
2¼-inch	10-gage	20c
3-inch	7-gage	35c
1½-inch	9-gage	15c
5⅜-inch	9-gage	55c
5½-inch	9-gage	57c

Plus usual extras for forming and for long lengths.

*Published discounts are subject to considerable shading, in some cases as much as three to five extra 5 per cents.

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago $54.20
Six-inch and over, Chicago .. 50.20
Four-inch, Birmingham .... 44.00 to 44.50
Six-inch and over Birmingham 40.00 to 40.50
Four-inch, New York ..... 60.50 to 61.60
Six-inch and over, New York 55.50 to 56.60
Standard fittings, Birmingham, base..$110.00
6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.
Class A pipe is $5 higher than Class B.

This illustration shows a Link-Belt conveyor handling hot cullet at American Window Glass Co., Arnold, Pa.

We design and build elevating and conveying machinery for handling all kinds of materials.

It Pays to Convey It

Labor—skilled or unskilled—is too valuable to lift, carry and haul anything that can be handled more quickly and economically on a conveyor.

Automobiles, batteries, stoves and refrigerators are some of the many varied kinds of products assembled and built on conveyors. Probably your product can also. Talk it over with an experienced Link-Belt Engineer.

THIS YEAR 50 LINK-BELT IS FIFTY YEARS OLD

1938

LINK-BELT COMPANY

Leading manufacturers of Elevating, Conveying and Power Transmission Machinery.

PHILADELPHIA, 2045 Hunting Park Ave. CHICAGO, 300 W. Pershing Road INDIANAPOLIS, P. O. Box 346

Offices in Principal Cities

LINK-BELT

"Where-To-Buy"

A classified-by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. ¶Index to advertisements will give you page number of any advertiser and by referring to advertisement you can get full particulars about products.

ACCUMULATORS
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Logemann Brothers Co., 3120 Burleigh Ave., Milwaukee, Wis.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., Co., 400 Chestnut St., Philadelphia, Pa.

ACETYLENE (Dissolved)
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., Inc., The, Indianapolis, Ind.

ACETYLENE GENERATORS
Air Reduction Sales Co., 342 Madison Ave., New York City.
Oxweld Acetylene Co., Newark, N. J.

ACETYLENE IN CYLINDERS
Air Reduction Sales Co., 342 Madison Ave., New York City.
International Oxygen Co., Newark, N. J.

ADAMITE ROLLS
American Adamite Co., The, 311 Oliver Bldg., Pittsburgh, Pa.

AGITATORS
Chapman Engineering Co., Mt. Vernon, O.
Cooper, C. & G., Co., Mt. Vernon, Ohio.

AIR COMPRESSORS—See COMPRESSORS (Air)

ALLOYS
Browne, deCourcy, Inc., 8 West 40th St., New York City.
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Interstate Iron & Steel Co., 104 So. Michigan Ave., Chicago, Ill.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, New York.
Vanadium Corp. of America, 120 Broadway, New York.

ALUMINUM
Leavitt, C. W., & Co., 30 Church St., New York City.
Rogers, Brown & Co., Room 1942, 30 Church St., New York.

ALUMINUM (Vanadium)
Vanadium Corp. of America, 120 Broadway, New York.

ALUMINUM TUBING
Summerill Tubing Co., Bridgeport, Pa.

ANGLES, TEES, CHANNELS—See STEEL (Structural)

ANNEALING BOXES
Blaw-Knox Co., 602 Farmers Bank Bldg., Pittsburgh, Pa.
National Wrought Iron Annealing Box Co., Washington, Pa.
Pittsburgh Malleable Iron Co., Pittsburgh, Pa.
Riter-Conley Co., Oliver Bldg., Pittsburgh, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wilfong, Millard F., Iron Works Co., 5195 Grays Ave., Philadelphia, Pa.
Zanesville Malleable Co., Zanesville, Ohio.

APPRAISALS
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

ARCHES (Flat, Suspended)
Laclede-Christy Clay Products Co., St. Louis, Mo.

ARMOR FOR CONCRETE FLOORS
Irving Iron Works, Long Island City, N. Y.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. La Salle St., Chicago, Ill.
Ladish Drop Forge Co., Cudahy, Wis.
Lockport Iron & Steel Co., Pittsburgh, Pa.
National Tube Co., Frick Bldg., Pittsburgh, Pa.
Pollak Steel Co., Cincinnati, O.
Transue & Williams Steel Forging Corp., Alliance, Ohio.

BALING PRESSES
Logemann Brothers Co., 3120 Burleigh Ave., Milwaukee, Wis.

BANDS AND HOOPS (Galvanized Strips)
Sharon Steel Hoop Co., Sharon, Pa.

BANDS (Iron)
Bethlehem Steel Co., Bethlehem, Pa.
Larkin, J. K., & Co., Inc., 253 Broadway, New York City.
Lockhart Iron & Steel Co., Pittsburgh, Pa.

BANDS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Pollak Steel Co., The, Cincinnati, Ohio.
Walsh & McGee Steel Co., 2 Rector St., New York City.

BANDS (Welded Iron and Steel)
Akron-Selle Co., Akron, O.

BAR BENDERS
Kardong Bros., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., 71 Broadway, New York City.

BARRELS (Steel)
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

BARS (Alloy)
Central Steel Co., Massillon, Ohio.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Harrisburg Pipe and Pipe Bending Co., Harrisburg, Pa.

BARS (Concrete Reinforcements)
Bethlehem Steel Co., Bethlehem, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Morris, Wheeler & Co., 30th and Locust Sts., Philadelphia, Pa.
Pacific Coast Steel Co., San Francisco, Cal.
Pollak Steel Co., The, Cincinnati, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Truscon Steel Co., Youngstown, Ohio.
Walsh & McGee Steel Co., 2 Rector St., New York City.

BARS (Iron)
Bethlehem Steel Co., Bethlehem, Pa.
Brown-Wales Co., 493 C. St., Boston, Mass.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Milton Mfg. Co., The, Milton, Pa.
Morris, Wheeler & Co., 30th and Locust Sts., Philadelphia, Pa.
Penn Iron & Steel Co., Creighton, Pa.
Truscon Steel Co., Youngstown, O.

BARS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Central Steel Co., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Warehouse Co., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Milton Mfg. Co., The, Milton, Pa.
Morris, Wheeler & Co., 30th and Locust Sts., Philadelphia, Pa.
Pacific Coast Steel Co., San Francisco, Cal.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., [illegible]th and Rockwell Sts., Chicago, Ill.
Tenn[illegible] Coal, Iron & Railroad Co., 13[illegible] Brown-Marx Bldg., Birmingham, Ala.
Trusc[illegible]eel Co., Youngstown, O.
Walsh[illegible] McGee Steel Co., [illegible] Rector St., New York City.
Young[illegible] Sheet & Tube Co., Youngstown, O.

BEAMS, CHANNELS, ANGLES, ETC.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. La Salle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Pacific Coast Steel Co., San Francisco, Cal.
Phoenix Iron Co., The, 20 So. 15th St., Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Snead Architectural Iron Works, Louisville, Ky.
Walsh & McGee Steel Co., 2 Rector St., New York City.

BEARINGS AND BUSHINGS (Bronze)
Wellman Bronze Co., The, 6017 Superior Ave., Cleveland, O.

BEARINGS (Ball)
Fafnir Bearing Co., The, New Britain, Conn.
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffman Bearings Corp., Anable Ave., Long Island City, N. Y.
Strom Ball Bearing Mfg. Co., 4535 Palmer St., Chicago, Ill.

BEARINGS (Journal)
Keystone Bronze Co., 39th St., Pittsburgh, Pa.

BEARINGS (Motor)
Fafnir Bearing Co., The, New Britain, Conn.
Norma-Hoffman Bearings Corp., Anable Ave., Long Island City, N. Y.

BEARINGS (Roller)
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffman Bearings Corp., Anable Ave., Long Island City, N. Y.

BEARINGS (Thrust)
Fafnir Bearing Co., The, New Britain, Conn.
Norma-Hoffman Bearings Corp., Anable Ave., Long Island City, N. Y.

BELT LACING (Leather)
Chicago Rawhide Mfg. Co., 1305 Elston Ave., Chicago, Ill.

BELTING (Chain)
Link-Belt Co., 910 S. Michigan Ave., Chicago, Ill.
Morse Chain Co., Ithaca, N. Y.

See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above